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# THE JAPANESE COTTON-TEXTILE INDUSTRY AND AMERICAN COTTON . . . . .

. . . . By W. Ladejinsky*

The rapid growth of the Japanese cotton-textile industry is the outstanding feature of Japan's industrial development. Among the cotton manufacturing countries, Japan ranks third in the number of spindles, second in the quantity of cotton consumed, and first in the quantity of cloth exported. The low prices resulting from declining costs and the depreciation of the yen carried an ever-increasing flow of Japanese cotton goods into every market of the world. In the course of this process, Japanese goods displaced the fabrics from other manufacturing countries, notably those of the United Kingdom. This led, among other things, to an important shift in the outlet for American cotton away from Europe, toward the Orient, and Japan became the largest foreign consumer of American cotton. The future position of American cotton in the Japanese market will depend upon the availability of other sources of supply of cotton that can be substituted for it and especially upon the trend of Japan's export trade in cotton goods.

The industrial revolution was ushered into Japan only during the latter part of the nineteenth century, yet the progress achieved since has been remarkable. Within a relatively short time Japan has managed not only to assimilate, but in some respects to improve upon, the industrial and commercial technique of the West. Probably in no field of endeavor has Japan displayed its talents to greater advantage, both as student and as master, than in the spectacular development of the cotton-textile industry. Starting in the sixties of the last century with a few thousand spindles, it has become Japan's premier manufacturing industry, measured in terms of invested capital, labor employed, value of output, and volume of foreign trade.

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While Japanese cotton-textile industry and export trade have been undergoing expansion for some time, the major strides forward occurred during the World War and again since 1931. Before the latter period, exports of silk played such an important part in the national economy that, in a sense, the country paid its way internationally with raw silk. This no longer holds true; Japan's foreign trade is dominated by cotton piece goods, which in 1936 accounted for 18 percent of the total exports. Since 1933, Japan has been responsible for the largest share in world exports of cotton piece goods.

In the course of this rapid rise, Japan supplanted the United Kingdom as the largest exporter of cotton goods by making great inroads into such traditionally British markets as India, China, the Netherlands Indies, Colonial Africa, and Egypt. In general, Japan penetrated into virtually every market of the world where cotton goods are sold. A feature of this expansion is that, though Japanese cotton goods have shown considerable gains in countries with high standards of living, the gains have been greatest in countries with low standards of living. The fact that Japan succeeded in expanding in the face of a contracted world cotton-goods market is of outstanding significance. Rapid expansion under such circumstances could not be made without disturbing the established interests of older industrial countries. This gave rise to a general outcry against Japanese competition, followed by the erection of numerous barriers against the influx of cotton goods from Japan.

The expansion of the Japanese cotton-textile industry resulted in the shift of a considerable portion of the United States cotton-export trade from Western Europe to the Far East. Since Japan is the second largest consumer of raw cotton and grows no cotton of its own, the country's needs are mainly supplied from American and Indian sources. Prior to 1931, Japan imported greater quantities of Indian than of American cotton. In the years 1931 through 1934, American cotton outstripped that of India, and Japan became the largest foreign market for American cotton. During the past 2 years, the position of the two competing growths in the Japanese market has been reversed again, with respect both to volume and to proportional shares in Japan's total imports of raw cotton.

It is now fairly clear that in the Japanese market the United States is faced with much more serious competition from other growths than it is in the British market. Such factors as price differentials between American and Indian cottons, mixing practices of the Japanese textile industry, and availability of improved cotton from other sources influence the consumption of American cotton in Japan. But in the immediate future, at any rate, the position of American cotton in the Japanese market will depend upon the status of the Japanese cotton-textile export trade.

## Development of the Textile Industry

### Pre-war development slow

The first modern cotton mill in Japan was established in 1866, but the development of the industry during the two following decades was a slow one. Only during the years 1886 to 1896, when the Japanese currency was stabilized, a protective tariff imposed on imported yarn, and import duties on foreign cotton removed, did the industry emerge as an important factor in the country's economy. The wars that Japan waged against China in 1894 and against Russia in 1904 stimulated this growth still further. It was, however, during the World War that the Japanese textile industry made its most notable progress. Manufacturing facilities were expanded, output greatly diversified, and exports increased by leaps and bounds. To be sure, between 1914 and 1918 there occurred a 26-percent curtailment in the export volume of cotton yarn, particularly coarse yarn, but during the same period exports of cotton cloth almost trebled in volume.

### Rapid expansion resulting from the World War

The development of the industry during the war years need not be measured only in terms of augmented spindleage, or huge profits, or even by the export volume of cotton goods. Of more significance is the fact that Japan secured a foothold in a number of markets into which it had had no access before the World War. During the war, the Japanese industry found itself entirely free from competition in its main market - China - and extended the markets for cotton goods to countries where Japanese textiles were hardly known before the war, such as British India, the Netherlands Indies, and Australia.

With the acquisition of new markets, the character of the goods exported changed considerably. The emphasis upon low-count yarn for the Chinese market gave way to products in more advanced stages of manufacture, as cloth or finished articles. Japan then appeared for the first time as an important factor in the cotton-goods export trade, thus laying the foundation for still greater expansion in the future.

During the post-war slump, the industry suffered a considerable setback, but it was of relatively short duration. Expenditures for new equipment reached new high levels, and the value of the textile machinery imported in the 5 years immediately after the war amounted to 114.5 million yen ($57,751,000). The progress, in fact, became so conspicuous that in 1925 and 1929 the production of yarns and textiles reached new records. Production continued at a high level until 1932, and the rapid rise since that year has brought the Japanese cotton-textile industry to the foremost position in Japanese domestic economy and foreign trade.

It is best, perhaps, to illustrate the rise of the textile industry in Japan by drawing some comparisons with the former textile workshop of the world, the United Kingdom. It then becomes unmistakably clear that Japan's progress was made chiefly at the expense of England. All the relevant indices bear out this contention. Data on cotton spindles show that, whereas in 1913 the United Kingdom possessed 38.8 percent of the world's total, by 1936 its share had declined to 27.3 percent. On the other hand, spindleage in Japan within the same period had risen from 1.6 to 7.2 percent. It is agreed, also, that a comparison of active spindle hours would undoubtedly raise Japan's share as against that of the United Kingdom. The same tendency holds true with respect to power looms. In 1913 England had 28.7 percent of all such looms and Japan less than 1 percent; on July 31, 1934, the share of the former had declined to 18.8 percent and that of Japan had risen to 8.8 percent. 1/

A comparison of the volume of raw-cotton consumption in the two countries, which is an even better index than physical equipment (since the latter ignores the effects of hours of work and various technological factors), tells the same story of the loss of the dominance England once held in world cotton-textile manufacturing and the rise of Japan. In 1913, the share of the latter amounted to 6.3 percent of the world total as against 19.9 percent accounted for by the United Kingdom; by 1936 Japan's share was doubled, whereas that of the United Kingdom was cut in half.

Cotton consumption

The following table indicates the trend of Japan's cotton consumption:

Table 1. Japanese mill consumption of cotton, by growths, 1904-1936

| Period a/ | Quantity | | | | |
|---|---|---|---|---|---|
| | Indian | American | Egyptian | Sundries | Total |
| | 1,000 bales | 1,000 bales | 1,000 bales | 1,000 bales | 1,000 bales |
| Average: | | | | | |
| 1904-1908..... | 428 | 195 | 15 | 193 | 831 |
| 1909-1913..... | 712 | 281 | 28 | 147 | 1,168 |
| 1914-1918..... | 1,099 | 455 | 30 | 115 | 1,699 |
| 1919-1923..... | 1,060 | 663 | 33 | 116 | 1,872 |
| 1924-1928..... | 1,174 | 891 | 76 | 130 | 2,271 |
| 1929-1933..... | 1,080 | 1,361 | 81 | 70 | 2,592 |
| Annual: | | | | | |
| 1934..... | 1,227 | 1,728 | 110 | 210 | 3,275 |
| 1935..... | 1,342 | 1,688 | 140 | 191 | 3,361 |
| 1936..... | 1,458 | 1,390 | 130 | 499 | 3,477 |

Continued -

1/ "The World Textile Industry", published by International Labor Office, Geneva, 1937, I:105-106.

Table 1. Japanese mill consumption of cotton, by growths, 1904-1936 cont'd

| Period a/ | Percentage of total | | | | |
|---|---|---|---|---|---|
| | Indian | American | Egyptian | Sundries | Total |
| Average: | Percent | Percent | Percent | Percent | Percent |
| 1904-1908 ..... | 51.5 | 23.5 | 1.8 | 23.2 | 100.0 |
| 1909-1913 ..... | 60.9 | 24.1 | 2.4 | 12.6 | 100.0 |
| 1914-1918 ..... | 64.7 | 26.8 | 1.8 | 6.7 | 100.0 |
| 1919-1923 ..... | 56.6 | 35.4 | 1.8 | 6.2 | 100.0 |
| 1924-1928 ..... | 51.7 | 39.2 | 3.3 | 5.8 | 100.0 |
| 1929-1933 ..... | 41.7 | 52.5 | 3.1 | 2.7 | 100.0 |
| Annual: | | | | | |
| 1934 ..... | 37.5 | 52.7 | 3.4 | 6.4 | 100.0 |
| 1935 ..... | 40.0 | 50.2 | 4.2 | 5.6 | 100.0 |
| 1936 ..... | 41.9 | 40.0 | 3.7 | 14.4 | 100.0 |

Compiled from reports of the Japan Cotton Spinners' Association and of the International Federation of Master Cotton Spinners' and Manufacturers' Associations. a/ Calendar years; bales of 500 pounds.

The annual consumption of cotton in Japan increased from an average of 831,000 bales during the period 1904-1908 to approximately 1,168,000 bales during the period 1909-1913, a rise of 41 percent. During the next 5 years, consumption increased 45 percent. There was a slowing up in the rate of increase during the years immediately following the war, but since 1924 consumption has again been rapidly increasing, finally reaching an all-time record of 3,477,000 bales in 1936. See table 1.

The weaving industry

In certain respects the weaving side of the Japanese industry is less developed than the spinning, but it has grown so much that it now absorbs practically all the yarn output. With the virtual disappearance of yarn exports, about a third of the output is used by the spinners who do weaving themselves, and the balance is sold to manufacturers who engage exclusively in weaving, both for home consumption and for the export trade. Members of the Cotton Spinners' Association work about 90,000 looms or about 25 percent of the total number employed in the industry, while the other 280,000 looms are installed in some 50,000 medium and small-sized establishments scattered throughout the country. The number of wide power looms, on which most of the export fabrics are made, increased from 117,000 to 1924 to 241,000 in 1934, while handlooms declined from 146,000 to 55,000. The quality of the woven goods has greatly improved in recent years with the change in the type of looms used. Figures for the total cotton cloth output are not available, but in 1935 the member companies of the Spinners' Association alone produced 1,843 million square yards of cloth.

There was practically no change in the number of looms during the years 1924 to 1934. It is to be noted, however, that the number of weaving establishments was cut by more than half within the same period because of a growing tendency toward consolidation of the industry into larger units through the elimination of many weak and small concerns. Despite this trend toward industrial concentration, the number of small weaving establishments is still very great, as illustrated by the fact that 90 percent of them are equipped with less than 10 looms. The financial position of many of these enterprises is weak, and for this reason they must adhere to the policies laid down by the spinning companies, which enjoy a virtual monopoly in the domestic yarn market.

## Factors Underlying Recent Expansion of the Industry

A significant feature of the recent expansion of the Japanese textile industry is that it has not been stimulated, as in earlier periods, by external causes, such as war; nor was it due merely to the depreciation of the yen, which will be discussed later. To a very large extent, the rapid expansion was brought about by the efforts of the industry itself through the adoption of a variety of rationalization measures, improvement of technique, and organization of the industry. All of this was directed toward one end: to bring about a maximum reduction in the cost of production. That the efforts were successful is witnessed by the fact that "during the eight years from 1925 to 1933 the workers' productivity increased by 71 percent in the cotton spinning industry and by 133 percent in the cotton weaving industry, while the labor cost per unit of production decreased by 60 percent and 68 percent, respectively." 2/

Another factor, dealing with the utilization of cheaper cotton, has contributed greatly to the successful development of the Japanese cotton-textile industry and trade. In this connection, an observation that was ventured in England some years ago holds good to this day and applies to the United States as well. "The important point is, and it is a point of immense importance," a student of the problem wrote, "that in the cloths in which Japan is competing with the United Kingdom she is putting in a cotton which on the average of the last two years has cost her 1d. to 1-1/2d. (2 to 3 cents) per pound less than the cotton which Great Britain is putting into her goods." 3/ The reference is obviously to the fact that, while Japan, as well as England, is dependent upon imported cotton, Japan "has not been so wedded to traditional kinds as Lancashire and is using types of cotton which are not so dear as the kinds favored by

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2/ Yoshio Kamii, "Industrial Recovery in Japan", International Labor Review, January 1937, p. 40.
3/ Barnard and Hugh Ellinger, "Japanese Competition in the Cotton Trade", Journal of the Royal Statistical Society, 1930, XCIII:205.

Lancashire." 4/ Japan has been practicing this all along because "she has understood how to satisfy the world's demand for cheap bulk cloths by using a type of raw material which, although not so good as what we use, is sufficiently good to satisfy the world's requirements." 5/

It is questionable whether the position attained by the Japanese cotton-textile industry could have been achieved in so short a time but for the large-scale basis of the industry, its strong financial position, and the centralized control over the entire industry exercised by the Japan Cotton Spinners' Association.

A total of 71 companies virtually control the entire yarn output. In the past 10 years the number of spindles has more than doubled, whereas the number of firms has increased but slightly. This is attributed to the expansion of large units and their absorption of small companies. There has been a noticeable trend for companies owning less than 100,000 spindles to decline in number, while those of 300,000 and more have shown a tendency to increase. The extent of concentration may be illustrated by the fact that "there are three mill combines controlling 60 percent of the industry, and five other firms account for more than another 20 percent; thus the control of the industry is much easier and more effective than in other countries." 6/ That the large-scale spinning industry is also bent on reducing the cost of production through vertical combination or integration is evidenced by its rapid expansion into kindred activities such as weaving, bleaching, and dyeing.

The financial records of the Japanese cotton-textile industry during the last three decades testify to its great prosperity. In wartime the dividends were as high as 50 percent and during the years following have, with few exceptions, exceeded 10 percent. In 1935, the dividend rate of the member companies of the Japan Cotton Spinners' Association was 16 percent. Notwithstanding this high dividend rate, the reserve surplus in 1935 amounted to 279,000,000 yen, or 63 percent of the paid-up capital, indicating the accumulation of substantial profits left in the business. The financial strength of the industry is especially notable in the case of the 10 leading firms. See table 2.

The Japanese cotton-textile industry is a chain in which all the links from the buying of raw materials to the manufacture and distribution of the finished product are actually controlled by a handful of men. This control is exercised by the Japan Cotton Spinners' Association. Since the Association represents 97 percent of all spindles, its power has become so absolute that "other associations of weavers, dealers and

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4/ "Report of the Cotton Mission", by the British Economic Mission to the Far East, 1930-31, p. 16.
5/ Barnard and Hugh Ellinger, op. cit.
6/ Arno S. Pearse, "The Cotton Industry of Japan, China and India and its Effect on Lancashire", International Affairs, September 1932, p. 641.

exporters have had to toe the line." 7/ It has adopted and strictly enforced rules and regulations that enable it to regulate production, prices, contracts, working conditions, and other phases of the industry's activities. It enforces the curtailment or expansion of output, depending upon market conditions at any given time; it also passes upon the quality of manufactured goods.

Table 2. Capital and profits of the 10 leading Japanese cotton companies, 1934 with comparisons

| Item | 1913 | 1923 | 1933 | 1934 |
|---|---|---|---|---|
| | 1,000 yen | 1,000 yen | 1,000 yen | 1,000 yen |
| Paid-up capital..... | 162,359 | 319,087 | 237,506 | 256,659 |
| Reserve fund..... | 139,073 | 217,207 | 218,772 | 229,121 |
| Net profits..... | 128,619 | 60,274 | 70,923 | 82,235 |
| Amount of dividends..... | 76,889 | 59,404 | 43,850 | 41,572 |
| Percentage dividends are of paid-up capital..... | Percent 47 | Percent 19 | Percent 18 | Percent 16 |

"The Industry and Trade of Japan", by S. Uyehara, London, 1936, p. 82.

With respect to purchases of raw cotton, the rules of the Association govern every detail of the transactions between the spinning companies and raw-cotton dealers. Through an agreement with the Japan Federation of Cotton Yarn Merchants' Associations, the Spinners' Association exercises control over the sales of the output, a control that goes to the extent of "restricting the number of dealers, in order to simplify transactions in manufactured goods." 8/ Finally, under the pretext of preventing skilled workers from changing employment, the Association maintains a most rigid control over their employees; one of its provisions, that "no worker can be taken in, while he or she is in the service of another employer, without the permission of that employer", 9/ throws some light not only upon the manner in which wages can be kept down but upon the entire system of employer-employee relations prevailing in Japan.

Labor and other costs

No detailed discussion concerning the position of the Japanese workers in the textile industry is attempted; but it is significant that, while their standard of living may not be lower than that of any other group of industrial workers in Japan, their wages are admittedly low in

7/ G. B. Sanson, "Report on Economic and Commercial Conditions in Japan", June 1936, p. 32.
8/ Mitsibushi Economic Research Bureau, "Japanese Trade and Industry", London, 1935, p. 247.
9/ Ibid.

comparison with those paid in similar industries in other advanced industrial countries. This would still hold true even if all the Japanese industrial welfare-work expenditures, which cover such items as free dormitories, medical treatment, education, and recreation, are added to the money wage. 10/ In such comparisons, however, account should be taken of the fact that in other industrially advanced countries many large textile enterprises provide a number of similar services free of charge; furthermore, with the exception of accident compensation and health insurance, other social services provided in such countries are practically absent in Japan, thereby relieving the Japanese manufacturers of similar charges. This led one student of the problem to the conclusion that, "on the average, the rates paid by the Japanese manufacturer are very much lower than those levied upon his British counterpart, while the system of unemployment insurance in force in Great Britain has no parallel in Japan." 11/

Of the 169,000 cotton-mill workers in Japan, 89 percent are girls from the overcrowded agricultural regions; 12/ in 1935 they worked a daily average of 9 hours and 36 minutes, or 8 minutes more than in 1931. Men are employed to perform the heavier and more highly skilled tasks, and there is a tendency to discharge them as equipment becomes so automatic that their skill is no longer necessary.

Wages in Japan are not determined by labor legislation concerning hours of work but by an abundant supply of labor in the villages, which is far greater than the demand, and the very low standard of living of the farmers. This keeps the money wage at a low rate, not only in times of economic depression but during an industrial boom as well. The daily wage of a woman operator was none too high in 1929, when it amounted to 1.14 yen (52 cents); by 1935 it had declined to 0.73 yen (21 cents). 13/ The decrease in real wages was even greater in view of the 13-percent rise in the cost of living. 14/ It seems, therefore, that the textile workers have also made a substantial contribution to lowering of costs and to high profits by working somewhat longer hours for less real wages. This factor, as well as the genuine improvements in technical efficiency, reduced between 1929 and 1935 the daily wage expenditure per 10,000 spindles by 54 percent (table 3). For weaving, the reduction per 100 looms was 56 percent.

Cheap labor is very often associated with low industrial efficiency, and under such conditions cost of production is likely to be high. But in

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10/ Fernand Maurette, "Social Aspects of Industrial Development in Japan", International Labor Office, 1934, p. 40.
11/ G. E. Hubbard, "Eastern Industrialization and its Effect on the West", London, 1935, p. 118.
12/ Monthly Returns of the Japan Cotton Spinners' Association, July 1937.
13/ Converted at the current rate of exchange.
14/ Yoshio Kamii, op. cit., p. 48.

the Japanese cotton-textile industry cheap labor, as indicated, and high industrial efficiency go hand in hand. As Dr. T. E. Gregory expressed it in connection with the problem of Japanese competition, "The decisive consideration is the co-existence of a relatively high (and rising) standard of efficiency with a standard of life low in relation to that efficiency." Figures on wages and efficiency in the Japanese textile industry give ample support to this view. It was estimated that "labor costs per bale in England are about two and a half times as high, and in the United States about three and a half times as high as in Japan." 15/ The combined effect of these various causes was the lowering of cotton-spinning costs by 50 percent during the past 5 years, thereby making them "less than half of European and American costs." 16/

Table 3. Wages and labour efficiency in the spinning industry 1929, 1934, 1935

| Date | Male workers | | Female workers | | Total |
|---|---|---|---|---|---|
| | Per 10,000 spindles | Daily wages | Per 10,000 spindles | Daily wages | Daily wage expenditure per 10,000 spindles |
| | Number | Yen | Number | Yen | Yen |
| 1929, Dec..... | 56.2 | 1.59 | 206.0 | 1.14 | 323.90 |
| 1934, Dec..... | 23.4 | 1.36 | 162.0 | 0.75 | 153.05 |
| 1935, Nov..... | 22.5 | 1.35 | 160.2 | 0.73 | 147.57 |

Monthly Report of the Japan Cotton Spinners' Association, taken from "Japanese Trade and Industry", by Mitsibushi Economic Research Bureau, p. 240.

Yarn output

Both in the volume of cotton yarn and in the production of piece-goods, Japan has outranked the United Kingdom; and, with the exception of the United States, Japan is now the most important producer of such goods. The ascending trend reached its peak in 1936, with an output of 3,607,000 bales of 400 pounds of yarn. This was an increase of 214 percent over the pre-war 5-year average.

A more detailed analysis of yarn data reveals a shift toward greater output of finer yarn. From 1904-1908 through 1936, the output of the coarse-yarn group more than doubled; but in 1936 that of medium was 36 times as large as the 1904-1908 average. During the 5 years 1904-1908, coarse-yarn production in Japan accounted for 92 percent, medium for 6, and fine for 2 percent of the total yarn output; in 1936,

15/ International Institute of Agriculture, "World Cotton Production and Trade", Rome, 1936, p. 339.
16/ Mitsibushi Economic Research Bureau, "Japanese Trade and Industry", London, 1935, p. 247.

coarse had declined to 43.9 percent, medium had risen to 48.6 percent, and fine to 7.5 percent of the total. From the point of view of American cotton exports, this trend is of particular significance. Since Indian cotton cannot be utilized, except to a limited extent in mixtures, in the spinning of medium counts, the Japanese cotton-textile industry is compelled "to buy increasing quantities of American cotton or some other growth having a staple length somewhat longer than most of the cotton produced in India." 17/ This explains why "the trend in the consumption of Indian cotton corresponds closely with production of coarse-count yarns and the consumption of American cotton is similarly related to the production of medium counts." 18/

Table 4. Japanese cotton yarn production, by counts, average 1904-1908 to 1924-1928, and annual 1929-1936

| Period | Coarse, 20s and under | Medium, 21s-42s | Fine, over 42s | Total |
|---|---|---|---|---|
| | 1,000 bales | 1,000 bales | 1,000 bales | 1,000 bales |
| 1904-1908.... | 766 | 49 | 21 | 836 |
| 1909-1913.... | 1,009 | 98 | 40 | 1,147 |
| 1914-1918.... | 1,367 | 250 | 49 | 1,666 |
| 1919-1923.... | 1,407 | 502 | 48 | 1,957 |
| 1924-1928.... | 1,545 | 794 | 79 | 2,418 |
| 1929..... | 1,706 | 985 | 102 | 2,793 |
| 1930..... | 1,589 | 834 | 101 | 2,524 |
| 1931..... | 1,613 | 814 | 140 | 2,567 |
| 1932..... | 1,694 | 958 | 158 | 2,810 |
| 1933..... | 1,717 | 1,201 | 182 | 3,100 |
| 1934..... | 1,646 | 1,623 | 204 | 3,473 |
| 1935..... | 2,025 | 1,413 | 123 | 3,561 |
| 1936..... | 1,584 | 1,752 | 271 | 3,607 |

Compiled from Reports of the Japan Cotton Spinners' Association; bales of 400 pounds.

Export trade in cotton goods

It is almost axiomatic that an industrialized country, with scanty raw materials and abundant labor reserves, must seek foreign markets for its manufactured goods. The course of Japan's economic development as a whole, and particularly that of the textile industry, epitomizes this rule. For this reason, the expansion of the Japanese

17/ Fred Taylor and Rodney Whitaker, "Consumption of American and Other Growths of Cotton in Japan", a preliminary report issued by the U. S. Department of Agriculture, 1935, p. 23.
18/ Ibid., p. 19.

cotton-textile industry has been predicated only in part upon home consumption, which is responsible now for slightly less than 50 percent of the total output; it is the ability to sell cotton goods abroad that is of paramount importance. In this task the Japanese textile industry has shown great adaptability to changing market conditions. Thus, when China and Chosen were almost the sole markets for Japan's cotton output in the form of yarn, the industry was geared to that end. When the demand for yarn practically disappeared, the solution was found in developing markets for cotton cloth. Now, with competition growing in the cloth markets, the situation is being met through an increased emphasis upon the output of finished goods.

Table 5. Exports of cotton piece goods from Japan, by principal markets, 1929 - 1936
(In million square yards)

| Countries | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 |
|---|---|---|---|---|---|---|---|---|
| British India | 573 | 391 | 381 | 605 | 411 | 411 | 556 | 480 |
| China | 375 | 323 | 218 | 187 | 113 | 59 | 56 | 37 |
| Hong Kong | 85 | 106 | 63 | 23 | 29 | 36 | 49 | 85 |
| Kwantung | 56 | 45 | 38 | 89 | 86 | 84 | 68 | 127 |
| Manchuria | 156 | 114 | 21 | 15 | 92 | 170 | 161 | 224 |
| Netherlands Indies | 193 | 183 | 212 | 352 | 423 | 441 | 371 | 352 |
| Malaya | 30 | 45 | 41 | 82 | 96 | 91 | 47 | 49 |
| Siam | 18 | 16 | 6 | 25 | 40 | 61 | 70 | 72 |
| Philippine Islands | 27 | 35 | 33 | 21 | 35 | 76 | 88 | 44 |
| Argentina | 18 | 7 | 11 | 23 | 35 | 66 | 103 | 82 |
| United States a/ | - | - | - | - | 1 | 7 | 36 | 75 |
| Australia | 14 | 14 | 21 | 36 | 55 | 75 | 87 | 70 |
| Egypt | 107 | 109 | 104 | 195 | 210 | 234 | 164 | 106 |
| Aden | - | - | 35 | 61 | 39 | 45 | 60 | 60 |
| Africa | 55 | 70 | 122 | 164 | 113 | 272 | 312 | 359 |
| Other countries | 84 | 114 | 108 | 154 | 312 | 449 | 497 | 487 |
| Total | 1,791 | 1,572 | 1,414 | 2,032 | 2,090 | 2,577 | 2,725 | 2,709 |

Compiled from "Cotton Trade Statistics", Economic and Statistical Department of the Joint Committee of Cotton Trade Organizations, Manchester, England, tables 184 and 208.
a/ From Foreign Commerce and Navigation of the United States, Bureau of Foreign and Domestic Commerce.

The increase from 412 million linear yards of cotton piece goods exported in 1913 to 2,709 million square yards exported in 1936 is indicative of Japan's trade expansion in this field. Even more significant is the fact that between 1929 and 1936 Japanese exports increased 51 percent (table 5), while during the same period the total world export trade

in cotton piece goods declined from 8,282 million square yards to 6,287 million square yards, or 24 percent. The inevitable result of this expansion was a radical change in the position of the various manufacturing countries in the cotton-goods markets of the world. Japan first became entrenched in the Asiatic markets, which had long been viewed by the United Kingdom as its own preserve; more recently Japanese expansion has taken place in Africa where British products formerly dominated. Japan's subsequent penetration into the Latin American markets led to a drastic decline of exports from the United States and a less marked fall in those from the United Kingdom. Finally, Japan not only replaced the United States as a principal supplier of cotton cloth to the Philippine Islands, but increased its shipment to the United States at a very rapid pace. A consideration of each of these steps will reveal Japan's present position in the international cotton-goods market and also throw some light upon the outlook for the future of Japanese trade.

Competition with Lancashire

The beginning of the rise of Japan as an outstanding factor in the international cotton-goods trade was a World War phenomenon. Prior to the war, Japan's exports of cotton goods had been small and almost restricted to China and Chosen. But in 1918, exports were almost three times as large as those of 1913, and new markets accounted for 43 percent of the total. 19/ The chief gains were made in India and the Netherlands Indies, where formerly British cotton fabrics faced no competitors. Since the war, Japan not only has been able to hold its own or expand in these newly acquired markets but has gained a foothold in other countries. In 1913 the United Kingdom exported a total of 7,075 million square yards of cotton cloth as against Japan's 412 million linear yards. By 1929, the respective volumes had changed to 3,672 million and 1,791 million square yards. By 1933, Japan had become the largest exporter, when it exceeded the United Kingdom by some 59 million square yards; and in 1936, when Japan's exports were 2,709 million square yards, the difference in its favor had increased to 791 million square yards.

An analysis of the export figures of the United Kingdom shows that the largest factor in their decline has been the huge curtailment of purchases by India; namely, from 3,057 million square yards in 1913 to 416 million square yards in 1936. Only a small part of this loss was due to Japanese competition, since the total volume of India's imports of piece goods in 1936 amounted to but 836 million square yards. Yet it remains true that, whereas in 1913 British piece goods accounted for 97 percent of the total volume imported by India, in 1936 its share had declined to 43 percent. This decrease was accompanied by the almost

19/ "The Japanese Cotton Industry and Trade", United States Tariff Commission, 1921, pp. 36-45.

complete disappearance of the trade in China and a considerable contraction of Latin American and African markets for English cotton fabrics. For Japan, on the other hand, British India and the Netherlands Indies have become the principal markets. In the case of the former, the imports of Japanese cotton piece goods increased from three-tenths of 1 percent in 1913 to 55 percent in 1936. In 1936, however, Japan's exports of cotton goods to certain Asiatic countries showed a marked decline from the high levels of the preceding 2 years. This was particularly true of China, where the market for Japanese cotton goods has lost its former importance, and, to a smaller extent, of British India and other British possessions. The recent recession in Asia has been offset by the rapid and consistent gains in the Near East, Africa, Australia, South America, and the United States.

Competition with the United States

In the course of Japan's expansion into Latin America and the Philippines, United States exports of cotton goods have been meeting increasingly severe competition. For this reason and because of the relationship between Japan's export trade in cotton cloth and the United States exports of raw cotton to Japan, to be discussed later, the competition between the two countries in those markets is of special interest. Whereas in 1929 the United States supplied 67 percent of total imports of cotton piece goods into the Philippines and Japan 17 percent, in 1935 the Japanese share had increased to 64 percent and the American had fallen to 31 percent. A similar trend has characterized their competition in Latin-American countries. Table 6 indicates the changes that were effected by Japan in the cotton-cloth markets of the two regions during 1929-1936. The contraction in imports of Japanese goods in the latter year was caused by restrictions that, in the case of the Philippines, assumed the form of an agreement limiting annual imports from Japan to 45,000,000 square yards for 2 years, beginning August 1, 1935.

Table 6. Changes in Latin-American and Philippine cotton-cloth markets, 1929, 1931, 1935, and 1936

| Year and country of origin | Destination | |
|---|---|---|
| | Latin America a/ | Philippine Islands |
| | Million square yards | Million square yards |
| 1929: United States | 175.3 | 93.5 |
| Japan | 22.1 | 23.6 |
| 1931: United States | 123.0 | 56.1 |
| Japan | 13.2 | 39.2 |
| 1935: United States | 81.3 | 42.2 |
| Japan | 177.4 | 86.7 |
| 1936: United States | 100.6 | 39.6 |
| Japan | 124.3 | 56.8 |

Official records of the Bureau of Foreign and Domestic Commerce; United States Tariff Commission, "Recent Developments in the Foreign Trade of Japan", 1936, p. 66. a/ Argentina, Chile, Colombia, Cuba, and Haiti.

The economic depression in Latin-American countries and the Philippines created a ready response to cheaper Japanese goods, even though of an inferior quality. It is questionable whether the volume of the relatively dearer and better quality goods exported from the United States or the United Kingdom would have remained at the same levels even if Japanese goods had not appeared in these markets. It is not unlikely, therefore, that to a certain extent "Japan was probably exploiting levels of demand which would have remained unresponsive if cheaper cotton goods had not become available to consumers with much-reduced incomes." 20/

A market in the United States for Japanese cotton goods was practically nonexistent prior to 1933, in which year Japan's shipments to the United States were slightly over a million square yards. The bulk of imports into the United States, amounting to 40 million square yards, came from the United Kingdom and Switzerland. Such imports were mainly confined to cotton specialties not produced in large quantities in the United States. In 1934, Japanese exports to the United States rose to 7.2 million square yards of piece goods, which were competitive in certain uses with domestic print cloths. Exports increased fivefold in the following year, and in 1936, when the figure increased to 75 million square yards, Japan became the main source of American cotton-goods imports measured on a yardage basis. But the expansion did not stop there. During the first 3 weeks of 1937, about 150 million square yards, or twice the entire volume of 1936, were booked for delivery.

The volume of Japanese cotton piece goods exported to the United States in 1936 was less than 1 percent of United States production, but the rate of the increase was very rapid. Furthermore, imports of Japanese goods were limited to a narrow field, chiefly that of bleached print cloths. In this field they accounted in 1935 for 12.6 percent of total domestic production. But for the quota arrangement made early in the year between American textile manufacturers and Japanese exporters, described in a later section, the 1937 volume would have attained new records, thereby placing the United States among Japan's leading outlets for cotton goods.

It may be noted in connection with this expansion that the appeal to the lower-income groups, which stimulated Japan's rise as a cotton-goods exporting nation, also operated successfully in the American market. This is illustrated by the fact that, while in 1935 the unit value of Japanese cloth averaged 31.2 cents per pound, that of the United Kingdom and Switzerland was $1.13 and $2, respectively.

The effect of depreciation of the yen

The main causes underlying the expansion of the Japanese cotton-textile manufacturing trade, such as industrial efficiency and reduced labor cost, have already been mentioned. These factors alone, however,

20/ "The World Textile Industry", I:133.

do not fully explain the strong Japanese position in the international cotton-goods markets since the depression. The problem of the devaluation of the yen must be considered in this connection.

The depreciation of the yen in December 1931 and its low foreign-exchange value assured for Japan another and a very important advantage on the world market. It is possible to overestimate the importance of the yen devaluation, but the fact remains that it had much to do with the 91 percent increase in Japanese cotton-goods exports during the period 1931-1936. A comparison with the currencies of the United Kingdom and the United States, two major textile-producing countries, shows that the actual depreciation of the yen at the end of 1936 was over 40 percent greater than that of the dollar or the pound sterling. The consequent lowering of Japanese prices in terms of foreign currencies enabled the Japanese exporters to sell cotton goods at lower prices than formerly and yet obtain equal or larger amounts of yen.

The depreciation of the yen, on the other hand, has its drawbacks, since yen prices of imported raw materials have increased and Japan must import all its raw-cotton requirements. But, on the whole, the cost-raising consequences of a devaluated yen have been slow in making themselves felt. Because of the continuous fall in world prices of raw materials during the years of depression, the yen devaluation raised the cost of raw cotton relatively little. Even when allowance is made for the higher cost of imported cotton, Japan's depreciated exchange still carries advantages as long as the extent of the rise in wages and internal prices is smaller than that of the fall of the yen. In reality, Japan being practically self-sufficient as far as food supplies are concerned, internal prices have not risen in anything like the degree to which the yen has depreciated, and real wages have actually declined. Under such circumstances, the yen depreciation strengthened the already favorable competitive position of Japanese cotton goods in the world markets.

## The Effect of Trade Barriers on Japanese Exports

### Widespread application of restrictions

The remarkable success achieved by Japan in selling cotton goods to the world cannot obscure the fact that all is not well with the trade. The Japanese exporters, who had become accustomed to rapid expansion, viewed with misgiving the relatively small increase of 5.6 percent in the volume of exports in 1935; they were still more disturbed by the decline of one-half of 1 percent in 1936, small though it was. The recession was caused by the fact that many countries not only were unwilling to increase further their imports of Japanese cotton cloth, but were anxious to reduce their takings from the high levels of the years immediately preceding. In 1936, of the 127 countries that imported cotton goods from Japan, 78 had restrictive measures directed primarily against Japanese imports, consisting of quotas, import-licensing systems, mutual-purchase agreements, discriminating tariffs, exchange controls, and other barriers. The trade affected

by the restrictions represented 64 percent of total Japanese piece-goods exports in 1936, and it included the exports to most of the leading outlets for Japanese cotton goods.

The United Kingdom, which has borne the brunt of Japanese competition more keenly than any other country, has been very active in promoting restrictions in its Crown Colonies and dependencies. Such free-trade ideas as were still prevailing in Lancashire, namely, that the world would grow prosperous by a free exchange of goods between countries and that it was beneficial to the people everywhere to have goods as cheaply as they could get them, did not stand the test of rapidly diminishing British exports of cotton goods in the face of a corresponding rise of Japanese export trade. The strong reaction against Japanese cotton goods may be witnessed by the following resolution adopted in the House of Commons: "Immediately to minimize the competitions of Japanese imports in the home and Empire markets, and, if necessary for this purpose, to free Britain from engagements hampering effective action." 21/ Other countries, though less affected than England, acted in a similar manner. The following statement indicates the restriction with which the Japanese exports of cotton goods must contend:

> "Obstacles to the expansion of exports of cotton goods from Japan were first imposed in 1932 when quotas were adopted in a number of countries, including France and some of her colonies, Turkey, Persia, Greece, Denmark (import license system) and Holland. In the same year the Ottawa Agreements gave the United Kingdom a greater margin of preference in British countries. In November 1933 the institution of the system of prior exchange permits in Argentina in effect gave the United Kingdom and some other countries a preferential advantage over Japan. * * * The earliest examples of regulation directed solely against Japan were the quotas in India and the Dutch East Indies imposed at the beginning of 1934. Five months later quotas were introduced in the British Crown Colonies. Since then many other countries have imposed barriers, some, as particularly in Egypt (now against China as well), the Philippine Islands, Iraq, Peru, Colombia, Ecuador and Benezuela, directed against Japan only, and some of a more general character, as in Haiti and Cuba, which have adopted a multiple tariff depending upon considerations of balance of trade. In addition, the United States has recently raised tariff rates on some cotton goods items in which Japan has a virtual monopoly." 22/

The restrictions against Japanese cotton goods in British India, their most important market, is of particular interest. The Indo-Japanese

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21/ Japan Weekly Chronicle - Commercial Supplement, December 7, 1933.
22/ Manchester Chamber of Commerce: Monthly Record, Vol. XLVII, No. 9, September 1936, p. 369.

agreement, consummated early in 1934, is essentially a quota arrangement in the form of a reciprocal exchange of commodities. According to its provisions, Japan agreed to purchase 1 million bales (of 400 pounds) of Indian cotton, in return for which it is allowed to sell 325 million square yards of piece goods in India. In order to obtain the maximum quota of 400 million square yards, Japan agreed to import 1.5 million bales of cotton. It was further agreed that, if the exports of raw cotton from India to Japan in any calendar year should exceed 1.5 million bales, the excess would be added to the quantity of raw cotton exported from India to Japan in the following year for the purpose of determining the allotment of cotton piece goods.

The Indo-Japanese agreement was extended for another 3 years beginning March 31, 1937. The former basic allotment was reduced to 283 million square yards, while the total allotment of cotton piece goods was not to exceed 358 million square yards. The separate agreement made with Burma provides for imports into Burma of 42 million square yards annually against purchase of 65 percent of the Burmese raw cotton available for export, not exceeding 70,000 bales.

A comparison between the old and the new agreements reveals that Japan must take 1,570,000 bales, instead of the 1,500,000 bales formerly required, in order to export to India 400 million square yards of piece goods. This is not necessarily a restriction on actual exports, since in the past 3 years Japanese imports of Indian cotton far exceeded the volume stipulated in the agreement. A more serious threat is the fact that Japanese exporters have been having difficulty in making full use of the old quota, particularly as it affects the share of gray cloth. In this field the Indian spinning industry has made rapid progress and on occasions has succeeded in underselling the imported Japanese cloth.

To the long list of countries that restrict imports of Japanese cotton goods, Australia should be added. On December 27, 1936, it became the fifth major market where Japanese textiles could enter only under quotas. In the United States, the 42-percent increase in duties on imports of bleached and printed, dyed, or colored cloths, effective June 20, 1936, was later supplemented by a quota arrangement entered into by the American textile industry and Japanese textile exporters. According to the terms of the agreement, Japanese exports to the United States during 1937 and 1938 were restricted to a total of 255 million square yards. Compared with the total of 75 million square yards shipped to the United States in 1936, the annual average of the subsequent 2 years still represents an increase of nearly 70 percent.

Quotas most effective

A review of the effects of the various restrictive measures indicates that the application of quotas has been more effective than that of tariffs, unless, as in Latin America, the tariffs are set at prohibitive heights. The quotas have been particularly effective in the British

Crown Colonies, Peru, the Philippine Islands, and the United States; they have also prevented the expansion of Japanese cotton exports to British India and the Netherlands Indies. These trade barriers make the future of Japan's export trade very uncertain. There is little likelihood that they will be reduced, in view of the prevalence in international commercial relations of the spirit of "economic exclusiveness" or "economic nationalism." On the contrary, the existing barriers against Japanese goods may be increased and new ones added. In addition to the problem of trade restrictions, the demand for cotton goods throughout the world, and particularly in the nondiscriminating countries, and the expansion of competing cotton-textile industries in Asia will have a definite bearing upon the future of Japan's trade in cotton goods, and therefore upon Japanese imports of raw cotton from the United States.

## Japan as a Market for American Cotton

### Exports of American cotton

The expansion of the Japanese cotton-textile industry to the point of becoming the world's second largest consumer of cotton is reflected in the rise of American exports of raw cotton to Japan. For the years 1932-1936, the latter have amounted to an average of 26 percent of the total volume of United States cotton exports, thus raising Japan to the position of the chief foreign outlet for American cotton. The importance of cotton in our trade with Japan may be gaged from the fact that in recent years it has accounted for more than half of our total exports to that country.

This development may be attributed to the geographic shift of the textile industry from Western Europe to the Orient. As England was losing its cotton-goods markets, both through Japanese competition and through the development of the textile industry in India and China, the British demand for American cotton was declining and that of Japan was rising. It should be emphasized, however, that the decline of American cotton exports to the United Kingdom from 3,587,000 bales in 1914 to 1,189,000 bales in 1936 was only partly counterbalanced by the increased volume of exports to Japan. The British textile industry has found in the United States a source of cotton best suited for its needs; other growths play a relatively small part. The Japanese industry, on the other hand, has always used more Indian cotton, with the exception of the period 1932-1935, when imports of American were larger than those of Indian.

American cotton exports to Japan prior to the World War were relatively small, in 1910-1914 averaging 283,000 bales or 3 percent of the total United States cotton exports. See table 7. As a result of the great progress made by the Japanese textile industry during and after the World War, the flow of American cotton into Japan increased at a very rapid pace, reaching an average of 1,174,000 bales, or 14 percent of the total exports during the period 1925-1929. The latest phase of Japan's industrial expansion brought about a still greater rise in American cotton

exports. Stimulated by the poor crop of Indian, the very low price of American, speculative buying (partly against the expected devaluation of the yen), and the tendency of the Japanese cotton spinning industry toward the production of yarns of higher count, United States cotton exports to Japan in 1931-32 reached a record volume of 2,300,000 bales, or more than 26 percent of the total shipped abroad. They represented, also, 72 percent of all the cotton imported by Japan in that year. Exports in the following 2 years were smaller than in 1932, but only in the past 3 years has it become apparent that the United States is sharing less and less in Japan's increased consumption of raw cotton.

Table 7. United States exports of raw cotton, average 1905-1909 to 1925-1929, annual 1929-30 to 1936-37

| Year ended July 31 | Total | To Japan | |
|---|---|---|---|
| | | Quantity | Percentage of total |
| | 1,000 bales a/ | 1,000 bales a/ | Percent |
| Average: | | | |
| 1905-1909..... | 8,036 | 218 | 2.7 |
| 1910-1914..... | 8,522 | 283 | 3.3 |
| 1915-1919..... | 6,071 | 559 | 9.2 |
| 1920-1924..... | 5,791 | 702 | 12.1 |
| 1925-1929..... | 8,514 | 1,174 | 13.8 |
| Annual: | | | |
| 1929-30..... | 6,690 | 1,020 | 15.2 |
| 1930-31..... | 6,760 | 1,224 | 18.1 |
| 1931-32..... | 8,706 | 2,286 | 26.3 |
| 1932-33..... | 8,419 | 1,743 | 20.7 |
| 1933-34..... | 7,534 | 1,846 | 24.5 |
| 1934-35..... | 4,799 | 1,524 | 31.8 |
| 1935-36..... | 5,973 | 1,479 | 24.8 |
| 1936-37..... | 5,440 | 1,550 | 28.5 |

Monthly Summary of Foreign Commerce of the United States and official records of the Bureau of Foreign and Domestic Commerce.
a/ Running bales of 478 pounds.

Competition with Indian and other growths

Data on Japanese cotton imports (table 8) show that in recent years about 90 percent of the total was made up of American and Indian cotton. It may be of interest to note that imports of Chinese cotton into Japan were formerly larger than either Indian or American. But a large part of the imports of Chinese cotton has always been used for purposes other than spinning. Total imports of Chinese have declined from an annual average of 220,000 bales during the period 1904-1908 to 128,000 bales in 1932-1936. The real extent of the decline becomes apparent from the fact that, while during the former 5-year period this growth accounted for 23 percent of total Japanese imports, during the latter period the figure

was reduced to only 3.5 percent. This reduction is attributed chiefly to the development of the cotton-spinning industry in China. Should the volume of the Chinese cotton crop increase to such an extent that an exportable surplus is available for Japanese spinning mills, it would be used to replace Indian; with improvement in the quality of the exported Chinese staple, it would replace some American.

Table 8. Japanese imports of cotton, by growths, average 1904-1908 to 1924-1928 and annual 1929 to 1936

| Period a/ | Indian | American | Chinese | Other | Total |
|---|---|---|---|---|---|
| | 1,000 bales | 1,000 bales | 1,000 bales | 1,000 bales | 1,000 bales |
| Average: | | | | | |
| 1904-1908 | 451 | 198 | 220 | 78 | 947 |
| 1909-1913 | 706 | 290 | 197 | 89 | 1,372 |
| 1914-1918 | 1,141 | 498 | 138 | 88 | 1,915 |
| 1919-1923 | 1,178 | 809 | 167 | 95 | 2,249 |
| 1924-1928 | 1,384 | 1,107 | 246 | 114 | 2,851 |
| Annual: | | | | | |
| 1929..... | 1,421 | 1,241 | 214 | 104 | 2,980 |
| 1930..... | 1,308 | 1,075 | 194 | 67 | 2,644 |
| 1931..... | 1,330 | 1,472 | 197 | 83 | 3,082 |
| 1932..... | 759 | 2,519 | 147 | 97 | 3,522 |
| 1933..... | 1,101 | 2,057 | 156 | 136 | 3,450 |
| 1934..... | 1,603 | 1,795 | 91 | 257 | 3,746 |
| 1935..... | 1,442 | 1,594 | 117 | 239 | 3,392 |
| 1936..... | 1,862 | 1,641 | 128 | 579 | 4,210 |
| | Percentage of Total | | | | |
| | Percent | Percent | Percent | Percent | Percent |
| Average: | | | | | |
| 1904-1908 | 47.7 | 20.9 | 23.2 | 8.2 | 100.0 |
| 1909-1913 | 58.0 | 21.1 | 14.4 | 6.5 | 100.0 |
| 1914-1918 | 59.6 | 26.0 | 9.8 | 4.6 | 100.0 |
| 1919-1923 | 52.4 | 36.0 | 7.4 | 4.2 | 100.0 |
| 1924-1928 | 48.6 | 38.8 | 8.6 | 4.0 | 100.0 |
| Annual: | | | | | |
| 1929..... | 47.7 | 41.6 | 7.2 | 3.5 | 100.0 |
| 1930..... | 49.5 | 40.6 | 7.4 | 2.5 | 100.0 |
| 1931..... | 43.1 | 47.8 | 6.4 | 2.7 | 100.0 |
| 1932..... | 21.5 | 71.5 | 4.2 | 2.8 | 100.0 |
| 1933..... | 32.0 | 59.6 | 4.5 | 3.9 | 100.0 |
| 1934..... | 42.8 | 47.9 | 2.4 | 6.9 | 100.0 |
| 1935..... | 42.5 | 47.0 | 3.4 | 7.1 | 100.0 |
| 1936..... | 44.2 | 39.0 | 3.0 | 13.8 | 100.0 |

Compiled from Reports of the Japan Cotton Spinners' Association.
a/ Calendar years; bales of 500 pounds.

Prior to 1932, with the exception of 1927, Indian cotton accounted for approximately 50 percent of total Japanese cotton imports as against 40 percent for American. In the years 1932-1935, American outstripped Indian in Japanese imports, but since 1935 India has again taken the place of leading supplier of raw cotton for the Japanese textile industry. Between the 1934-35 and 1936-37 seasons, Japan's total imports of cotton increased by 1,140,000 bales. During the same period, those of American declined from 1,684,000 to 1,630,000 bales, while those of Indian increased from 1,500,000 to 2,162,000 bales. It is clear, therefore, that, while imports of American were larger than during any year prior to 1932, they have been losing ground in the Japanese market in comparison with Indian cotton. Thus in 1936-37 the share of American in total imports of cotton into Japan was reduced to 35 percent while that of Indian had risen to 46 percent.

The rise in Japanese imports of miscellaneous growths, such as Brazilian, Peruvian, and African, has also weakened the position of American cotton in Japan. Brior to 1933, these growths accounted for less than 3 percent; in the last cotton season they were responsible for nearly 14 percent of total Japanese imports. Part of this increase must be attributed to special trade considerations affecting the entire Japanese export trade with those cotton-growing countries.

Problem of quality

Despite the rise in imports of miscellaneous growths, it is apparent that for the time being the principal competition that American cotton meets in Japan is still that of Indian. A comparison of their qualities throws light upon the difference in the prices of the two growths and its ultimate effect upon the percentage of each in the total volume of Japanese imports.

A study of the 1934-35 American crop indicates that 8 percent of the total crop was shorter than 7/8-inch in staple length and that 92 percent was of 7/8-inch and longer. The respective figures for the Indian crop during the same season were 75 and 25 percent. The Indian long-staple type available for mill consumption is reduced by admixture with shorter cotton to considerably less than 25 percent of the total Indian crop. Moreover, a substantial portion of the longer staples of Indian cotton are utilized in Indian mills.

Although the American cotton exported to Japan is believed to average somewhat shorter in staple than that exported to other countries, it is from this cotton that the Japanese mills spin most of the medium yarns and, in years when American is cheap relative to Indian, coarse yarns as well. A considerable volume of irrigated cotton of 1-inch or longer staple is also exported to Japan from the West Coast and is apparently used in the finer counts of yarn. The important conclusion that may be drawn is that until very recently, "with the exception of a relatively small quantity of the cotton imported from Egypt and other African

countries, and perhaps some Chosenese and Brazilian cotton, practically all of the cotton imported into Japan, from countries other than the United States, is comprised of rather short-staple varieties, a considerable part of which is rather low in grade." 23/

Problem of price

The difference in quality explains why the trend in the consumption of American cotton in Japan is closely related to the trend in the production of medium-count yarns. Yet the quality aspect alone does not explain fluctuations in the volume of imports of the two growths, especially over a relatively short period of time.

As already suggested, the price relationship of American and Indian, as a short-time factor, is even more important in affecting their respective positions in the Japanese market. The difference in quality presupposes, of course, a difference in price; the significant factor is the extent of the difference. It is considered that the "normal" price spread between Indian Akola and Strict Middling 7/8-inch American is around 20 percent and that any material variation in that spread affects the sale of the two growths. In general, the volume of American cotton in Japan increases when the price in relation to Indian is low and decreases when it is relatively high. This was fully demonstrated during the 1931-32 cotton season, when the price spread between the two growths was reduced to about one-half cent per pound, and in 1923-24, when American prices were unusually high relative to Indian. Thus, according to a study prepared in the Bureau of Agricultural Economics, "as the price difference between American and Indian cotton approaches zero, the consumption of American cotton increases. If the price remained at this relationship for any considerable time, American cotton would replace a large part, if not all, of the Indian cotton consumed by Japanese mills. On the other hand, as the price difference between American and Indian cotton widens, Indian tends to replace American in the coarser counts and, to some extent, in the lower limits of the medium counts; but, since it is not ordinarily suitable for spinning the finer yarns and many of the medium yarns, it cannot replace American cotton in these counts." 24/

The greater suitability of American cotton is an important factor favoring its import into Japan, provided cotton of a similar quality from other sources cannot be substituted for it. The Japanese industry, therefore, could not substitute Indian cotton for American, nor for that matter Chinese for Indian, without curtailing its output of higher-quality textiles, with consequent dislocation of established manufacturing practices and markets.

23/ Fred Taylor and Rodney Whitaker, op. cit., p. 10.
24/ Ibid., p. 30.

Mixing practices

Aside from the question of price, two other factors should be considered in connection with the position of American cotton in the Japanese market. One of these is the practice of mixing and blending developed by Japanese spinners. The second is the question of the availability of large supplies of high-grade cotton from sources other than the United States.

The successful utilization of lower qualities of cotton is closely related to the skilful methods of the Japanese in mixing and blending growths of cotton of a wider range of staple length than those used in other cotton-textile manufacturing countries. This is due, in part, to the more modern equipment in Japanese mills. But whatever the cause, the mixing of a variety of growths that differ in staple length is not uncommon in most Japanese mills. This enables them to take advantage of the changes in the relative prices of competing growths more readily than if less flexible methods were followed, thereby facilitating the Japanese cotton-textile industry in replacing American cotton in certain counts when its price becomes too high in relation to other growths. It must be emphasized, however, that, with all Japan's skill in blending cottons, the industry cannot produce a fine or extra-strength yarn from short-staple and poor-character cotton. Observations made in Japan by Mr. Fred Taylor during 1931 to 1933 indicated that mixing practices were roughly as follows: 10 percent American in counts 10s to 19s, 25 percent in 20s, 75 percent in 21s to 30s, and 100 percent in 31s to 42s. The increase in the Japanese consumption of miscellaneous cotton, and especially Brazilian, which does not differ greatly from American in staple length, must have affected the proportion of American cotton in the given yarn counts.

## New Sources of Cotton Supplies

In the last few years, Japan has been unstinting in its efforts to develop new sources of cotton supply, partly no doubt in order to decrease its dependence upon the United States and India and partly as a means of furthering its export trade with new cotton-producing countries like Brazil. It seems natural that Japan should try to increase production of raw cotton in areas under its direct and indirect control or where Japanese influence is growing, as in Chosen, Manchuria, and North China.

Chosen

The 20-year cotton program inaugurated in Chosen in 1933 was the third and most ambitious attempt to expand cotton production there. The 6-year program of 1912 and the 10-year program of 1919 extended the cotton area to 432,000 acres in 1933, producing a total of 140,000 bales. The need of "rationalizing" Chosen's agriculture to prevent the overproduction of rice and the great rise in cotton consumption in Japan, coupled with a desire to get cotton from a source near at hand, brought

about a plan that called for an additional 2,450,000 acres under cotton in Chosen by 1953. The output was to provide an exportable surplus of 400,000 to 600,000 bales of 478 pounds for the Japanese spinning mills.

The successful realization of the whole program may be questioned, although in 1937 the area under cotton was 112,000 acres, and the crop 76,000 bales, larger than in 1933. The staple length of a considerable share of the total is of 7/8 to 1 inch and fit for the spinning of medium counts. Yet obstacles in carrying out the plan are formidable. The entire agricultural economy of Chosen is attuned to the production of rice, and cotton cultivation is more hazardous than rice growing because of the uncertain climatic conditions. Practically all the arable land of Chosen is already under cultivation, and any shift to cotton leads to a corresponding decrease in other crops, chiefly rice. Since in planting crops the farmer seeks the greatest economic advantage, any considerable extention of cotton production in Chosen will be influenced to a very large degree by the price of rice in relation to that of cotton.

Manchuria

Considerable effort has been made to expand cotton production in Manchuria. In 1933, local authorities, in conjunction with Japanese interests, launched upon a policy of increasing the cultivation of native cotton varieties, as well as of the early-maturing American types, and of improving the quality of native cotton for the spinning of medium-count yarn. The program called for an annual expansion of the cotton area until it should reach 740,000 acres by 1950 as against the 130,000 acres under cotton in 1933. The program anticipated that such an area would produce a crop of around 400,000 bales, of which 50 percent or more was to consist of upland varieties from original American seed.

Judging by the results achieved to date, it is highly problematical whether Manchuria will be able to expand cotton production along the lines indicated in the program. A large-scale increase in cotton acreage in Manchuria faces serious obstacles. 25/ Among the more important are the climatic conditions, which restrict cotton growing to a very limited area in South Manchuria. The production of a type of cotton comparable with American is particularly difficult because of the short growing season. It is true that the Manchurian farmers increased their cotton area from 130,000 acres in 1933 to 227,000 in 1934, with an output estimated at 96,000 bales (of 478 pounds). Unfavorable weather reduced the area to 140,000 acres in 1935 and the output to 44,000 bales. In 1936 the cotton area was increased again to 200,000 acres, producing a total of 67,000 bales. This is a far cry from domestic self-sufficiency, let alone a surplus cotton production upon which Japan could rely for part of its needs. Japanese authorities still profess an interest in increasing

25/ Owen L. Dawson, American agricultural commissioner in Shanghai.

Manchurian cotton production, but it was officially reported that the elaborate plan introduced in 1933 was temporarily discontinued in 1936 and instead there was instituted a 3-year investigation of Manchuria's cotton problems.

North China

It is fairly clear now that Japanese attempts to secure large sources of raw cotton in Chosen and Manchuria are not promising, and therefore hold little threat for American cotton. Of a more serious nature are Japan's efforts to induce the farmers of North China to grow cotton in such volume and of such quality as to meet at least some of the requirements of the Japanese textile industry. The larger output anticipated was intended also for Japanese mills located in North China. Should cotton growing in North China continue to increase, the operation of Japanese mills located there would doubtless be stimulated. The resulting expansion would enable them not only to supply the domestic market in North China, but possibly also to export cloth to supplement or maintain some of the foreign markets of the industry in Japan proper. Several major obstacles, however, stand in the way of a large cotton-acreage expansion in North China.

Though China is regarded as the third largest producer of cotton, its domestic output is barely sufficient to cover the demands of its own textile industry. This is particularly true of improved types of cotton, notwithstanding the fact that China has been increasing the production of American upland varieties. Even if the availability of an exportable surplus is assumed, it would compete directly with Indian cotton and only indirectly with American, unless the production of Chinese-American varieties is substantially increased.

In North China, where expansion has already taken place in recent years, various cotton-growing districts are subject to drought, while cold springs and cold autumns in the more northern sections also restrict cotton growing, especially of long-staple varieties. One or two bad seasons might alter considerably the cotton-extension plan, especially since free land is not available for cotton production on any material scale. A large increase in cotton acreage can be attained only at the expense of other crops, chiefly the food crops. Thus, in 1937 the Chinese cotton area was somewhat larger than in the previous year, but chiefly because of a corresponding decrease in other crops. The favorable price of cotton compared with other crops was the major factor in increasing the area during the past 3 years. In the absence of compulsory measures, the future expansion in cotton acreage in North China will depend chiefly upon the relation of cotton prices to those of other crops.

The significance of North China as a cotton region of growing importance or the possibility of a limited competition between American and Chinese cotton in Japan need not be deprecated. Nevertheless, statements

which were widely publicized in 1935 concerning a scheme whereby Japan might become "entirely independent of American cotton purchases within 5 years" 26/ have no foundation in fact, at least under normal conditions. It seems premature, therefore, to view North China as a source of cotton exports that could displace, in the near future, an appreciable volume of American cotton in the Japanese market.

Brazil 27/

A more promising potential source of cotton for Japan, and for that matter for a number of other cotton-consuming countries, is Brazil. The rapid expansion of cotton production is an outstanding development in Brazilian agricultural economy in recent years. A few figures will suffice. During the period 1924-1933, the annual cotton acreage ranged from a minimum of 1,376,000 to a maximum of 2,000,000 acres, and the volume of production fluctuated between 430,000 and 740,000 bales. Within the past 4 years, however, cotton growing has expanded so rapidly that in the season 1936-37 Brazil planted a total of 6,425,000 acres, producing a new record crop of 1,712,000 bales (of 478 pounds).

The cotton-growing region of Brazil is divided into two well-defined areas, northern and southern. In the latter area, American Upland cotton is grown almost exclusively, and it is there that expansion has been greatest. From a low point of 45,000 bales in 1928-29, production increased to 1,100,000 bales in 1936-37, or 65 percent of the total cotton crop of Brazil. The quality of the southern crop has improved considerably in recent years and apparently compares favorably with that of American, judging by comparative prices commanded by the two growths. From the standpoint of Japanese cotton needs, the improvement in the quality of Brazilian cotton has been a factor in lessening the dependence upon American.

Another element that is likely to affect the position of Brazilian cotton on the Japanese market is that a great deal of cotton growing is carried on by Japanese immigrants. In Sao Paulo, where in recent years an average of about 50 percent of the country's cotton crop has been produced, it is estimated that about 40 percent is grown by Japanese.

The rapid increase in production is reflected in the mounting Brazilian cotton exports. The annual export volume in the years 1924-1933 averaged 87,000 bales. In 1933, exports amounted to only 54,000

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26/ Manchester Guardian, August 2, 1935. In this connection, see also The China Weekly Review, August 3, 1935; Japan Chronicle, August 8, 1935; and Oriental Economist, August 1935.

27/ For details, see "Cotton Production in Northeast Brazil" and "Cotton Production in Southern Brazil", by P. K. Norris, foreign cotton production specialist, United States Department of Agriculture; also "Cotton Production in the State of Sao Paulo, Brazil", by P. O. Nyhus, American agricultural attaché at Buenos Aires, published in Foreign Agriculture, January 1937.

bales, but the year following they jumped to 584,000, increasing to 630,000 in 1935 and finally reaching 942,000 in 1936. An analysis of the total exported volume shows that Brazilian cotton has secured an important foothold in Japan. In 1936, Brazilian cotton exports to Japan amounted to 200,000 bales as compared with 11,000 bales the year previous. Exports in 1937 bid fair to exceed those of 1936 by a sizable margin; during the months of January through August they were 20,000 bales larger than the total of 1936. It has been reported that an important motive for increased Japanese purchases of Brazilian cotton was to expand Japan's export trade with Brazil; but, whatever the motive, the fact remains that the availability of Brazil's cotton crop has somewhat lessened Japanese dependence on American cotton. With a further gradual expansion of Brazilian cotton growing, increased direct competition with American cotton in the Japanese market is to be expected.

## Prospects for American Cotton in Japan

The preceding discussion has indicated that the position of American cotton in Japan depends, in the main, upon two factors: first, on its competition with other growths; second and more important, especially in the immediate future, on the possibilities of expansion or contraction of Japan's export trade in cotton goods.

With respect to the first, it may be stated that for some years to come Japan will not be able to obtain important quantities of medium-staple cotton from sources under its direct or indirect control. The results of Japan's encouragement to cotton growing in Chosen and Manchuria hold little or no threat for American. While the prospects for expansion of cotton growing are more favorable in North China, serious limitations already mentioned make a sizable surplus of American type cotton for export problematical. Japanese imports of Brazilian are likely to increase, and, to a smaller extent, imports of other miscellaneous growths. It would seem, therefore, that Japan is becoming somewhat less dependent on American cotton than in the past. For the time being, however, Indian will continue to be the principal competing growth, and the respective share of each in Japan's imports will depend on their price relationship. It is probable that for some time to come Japan will depend primarily on American cotton to enable its industry to spin medium-count yarns and on Indian for the coarse counts.

With respect to the second factor threatening the position of American cotton in Japan, attention should be called to the fact that the domestic and colonial markets enjoyed by the Japanese cotton-textile industry are very limited in comparison with those of the United Kingdom or the domestic market of the United States. Japan became the second largest consumer of raw cotton, and by this token the largest single export outlet for American cotton, chiefly because it succeeded in acquiring new markets and expanding old-established ones at the expense of other sources, notably the United Kingdom.

Recent trends in Japan's exports of cotton goods point to a contraction rather than an expansion. There are few untapped markets of any consequence, and in many of the older markets the expansion of Japanese goods is being restricted by every known means. The situation in the Indian market is disturbing to the Japanese by virtue of the rapid development of that country's cotton industry. "Cheapness is the only strong point of Japanese goods", an important Japanese cotton mill owner pointed out, "but that cheapness can't be guaranteed for a long time." 28/ The pertinence of this warning is evident with respect to important lines of cotton goods produced in India right now. The abundant supply of labor, secured at cheap rates, and an ample source of domestic raw material are gradually forcing out the Japanese goods. Japan is beginning to share the experience to which it subjected the United Kingdom in this very market.

China (exclusive of Manchuria) as a market for Japanese cotton goods has lost all its former importance. In 1936, for instance, Japan exported to China only 37 million square yards of piece goods as against 375 million square yards in 1929. Here, more so than in India, the requirements are met from domestic sources. Paradoxically enough, Japan's loss in cotton-goods trade sustained in China is being accomplished with the aid of Japanese capital, which is rapidly building there an important textile industry. What effect the outcome of the present conflict between Japan and China is likely to have on the position of Japanese piece goods in the Chinese market is uncertain. The numerous cotton mills destroyed in the course of the conflict may stimulate a temporary rise in imported cotton goods, even though the purchasing power of the Chinese people may be considerably reduced during the transition period immediately following the conflict. If, however, recent tendencies in the development of China's textile industry are not interfered with, it is not likely that important quantities of Japanese cotton goods can be sold in China.

On the whole, the curtailment of Japan's cotton-goods trade in India and China will probably result in some loss in the consumption of American cotton in Japan.

What the native textile industries do in curtailing Japanese cloth sales in India and China, increasing trade restrictions may accomplish in some of the other markets. The consequent decrease in Japanese cotton-goods exports may stimulate textile exports from Western Europe, principally from the United Kingdom. The question is: What will be the effect of such a shift on American cotton exports? It was pointed out previously that the shift of the cotton-textile industry from the United Kingdom to Japan resulted in a net loss to cotton exports from the United States. A shift back to Western Europe of part of the trade enjoyed by Japan may offset the cotton loss sustained in that market. Such an outcome is probable because the United Kingdom, which is the chief cotton outlet

28/ Shingo Tsuda, "Anglo-Japanese Rivalry in the Cotton Industry", p. 15.

for the United States in Western Europe, would be in a position to regain some of its lost markets, and in spinning yarns the United Kingdom has always used greater proportions of American cotton than has Japan. It may be concluded, therefore, that the decline of American cotton exports to Japan, resulting from curtailed markets for Japanese piece goods, will be compensated, to some extent at least, by increased exports to Europe.

# THE BRAZILIAN COFFEE-DEFENSE EXPERIMENT . . .

. . . By Erwin P. Keeler*

Government intervention in the Brazilian coffee industry, usually referred to in Brazil as "coffee defense" and more commonly in the United States as "coffee valorization", has been carried on almost without interruption for the past 30 years. Broadly speaking, the Brazilian coffee-defense measures have been designed to regularize marketing of a crop subject to sharp year-to-year fluctuations in volume, to iron out correspondingly wide price fluctuations, and, on occasion, to raise prices. The Brazilian coffee-defense measures represent the longest-standing experiment of this type with a major agricultural commodity, and the experience under them is therefore of particular interest. Recent changes in Brazilian coffee policy have contributed to make the coffee-defense measures a timely subject for examination.

To understand the high degree of Government intervention in the Brazilian coffee industry, it is necessary to understand first the importance of coffee in the economic life of the country. With one or two exceptions, Brazil has for half a century produced each year more than 50 percent of the world's total coffee supply, and despite increasing production in other areas has accounted, on an average, for about 72 percent of the world production since 1900. While other commodities, such as rubber, cocoa, and cotton, have on occasion occupied important places in Brazil's economic life, coffee has ranked first among export commodities for more than a century and, during the period from 1900 to date, has made up approximately 60 percent of the total value of the Brazilian export trade.

In addition to the importance of the crop as a source of employment for labor and capital and as a source of Government revenue, the returns from coffee exports are an important influence in determining the exchange value of Brazilian currency and in financing Brazilian purchases and obligations abroad.

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## Factors Leading to Coffee-Defense Measures

The direct causes that have given rise to Government intervention in the Brazilian coffee industry are to be found in (1) the pronounced upward trend in production during the present century, particularly the last 10 years, (2) the cyclical fluctuations in the size of the crop, and (3) the fact that consumer demand for coffee is relatively inelastic.

Production in excess of world demand for Brazilian coffee first became a serious problem in 1902, when heavy plantings during the 1890's began to come into production. It reached a crisis stage for the first time in 1906, with a crop of more than 20,000,000 bags resulting from a combination of favorable weather and tree conditions. At this time, world consumption of Brazilian coffee probably did not greatly exceed 12,000,000 bags, and the prospective surplus from this crop, following upon a considerable carry-over from earlier years, led to the undertaking of the first valorization scheme in 1906. The history of overproduction as a more or less perennial problem, however, dates from about 1927-28. In that year, the Brazilian crop of approximately 26,000,000 bags exceeded apparent world consumption of Brazilian coffee by more than 10,600,000 bags. In all but 2 or 3 of the 9 years since 1927-28, Brazilian production has materially exceeded world consumption of Brazilian coffee, and in 4 of these years it has exceeded world consumption of all coffees.

Brazil's problem of overproduction, which has been a virtually constant one for the past 10 years, has been aggravated by cyclical fluctuations in the size of the crop. It was to meet these fluctuations, rather than the chronic condition of overproduction that has developed in the last decade, that the first Brazilian coffee-defense measures were enacted during the early 1900's. As shown in figure 1, a large crop is usually followed by one or more smaller crops, because of exhaustion of the trees by the large crop. Weather conditions, of course, also affect the trees and may make more pronounced, or may offset, the more or less regular crop cycle. A conjuncture of a favorable condition of the trees and of unusually favorable weather results in abnormally large crops.

Generally speaking, world coffee consumption is extremely inelastic and has proved incapable of expansion to absorb either the cyclical overproduction of earlier years, or the more or less constant overproduction of the past decade. The lack of response that coffee consumption shows to changes in prices of green coffee is clearly illustrated by a comparison of figures 2 and 3. In a comparison of the 5-year periods 1922-23 to 1926-27 and 1932-33 to 1936-37, it will be noted that, during the first of these periods when world (New York) prices of green coffee (Santos 4) averaged 19.9 cents per pound, world consumption averaged about 20,900,000 bags; during the second period when prices averaged 10.1 cents per pound, world consumption had increased to an average of only 24,100,000 bags. This lack of response to price may be attributed, among other factors, to the fact that, if used at all, coffee is generally considered a staple by the consumer. Furthermore, the price of the green coffee usually represents

less than half of the total price of the product to the consumer, the other items entering into the final price being relatively inelastic.

A further factor that no doubt influenced the Brazilians in embarking on their coffee-defense measures, and certainly influenced their choice of measures, is to be found in the relatively nonperishable nature of the commodity. Under proper storage conditions, green coffee can be held almost indefinitely without material deterioration.

The history of Brazilian coffee-defense measures may be broken down into certain fairly well-defined periods: (1) the first valorization scheme, initiated in 1906 and liquidated for practical purposes by the beginning of the World War; (2) the second valorization in 1917 and 1918; (3) the third valorization, initiated in 1921 and liquidated by 1924; and (4) the adoption of "coffee defense" as a permanent policy about 1924. The first three measures may be treated briefly and more detailed attention given to measures and experience under the permanent policy. The State of São Paulo generally produces about two-thirds of Brazil's total coffee crop and has usually initiated these measures, later to be assisted in their operation or to have them taken over entirely by the Federal Government.

## Early Coffee-Valorization Measures

The first valorization measure was undertaken in 1906 as an emergency measure to meet the huge crop, for those years, of more than 20,000,000 bags. Coming at a time when production in immediately preceding years had already become unwieldy as the result of heavy plantings in the 1890's, the 1906-07 crop exceeded world consumption of Brazilian coffee by about 8,000,000 bags. The valorization was initiated by the Government of São Paulo and was carried out eventually with the financial assistance of foreign bankers and the Federal Government of Brazil. It involved the purchase and storage of large quantities of coffee (said to have reached a peak of about 10,000,000 bags in 1908) in the principal importing centers in the United States and Europe. Stocks were liquidated in an orderly fashion during the 5 years from 1909 to 1913, and for practical purposes liquidation was completed by the beginning of the World War, with the exception of certain stocks held in German-controlled ports.

In connection with the successful operation of the first valorization measure, it should be noted that it was accompanied by efforts toward control of production. In 1902, new planting had been prohibited in São Paulo for a period of 5 years, and on termination of this period the prohibition was extended for another 5 years. While accurate enumerations of trees are not available for these early years, it would appear that this prohibition contributed to the successful conclusion of the first venture in valorization, and perhaps of the second and third as well.

The second valorization project was initiated by the Government of São Paulo in 1917, when another large crop was in prospect following upon a period of declining consumption attendant on the World War. Its aim

was to purchase and retain in Brazil an amount of coffee equivalent to that which under peacetime conditions had usually been taken by Germany. This valorization project, in the course of which the Government of São Paulo is said to have purchased over 3,000,000 bags of coffee, was terminated shortly by an unforeseen event, which bankrupted many growers but which returned a substantial profit to the Government on its holdings of coffee. A heavy frost occurred in June 1918, which not only reduced the crop being harvested but made it apparent that the next year's crop would be abnormally small. As a result of the crop damage and, subsequently, the end of the war and the prospective reopening of European markets, prices advanced sharply, and the Government liquidated its stocks readily.

The third valorization was undertaken in 1921, after prices had undergone a pronounced decline during the last half of the preceding year, under the influence of the general post-war slump in commodity prices and the large crop of 1920-21. This valorization was undertaken by the Federal Government; and, because of smaller crops in 1921-22 and 1922-23, the stocks acquired were successfully liquidated by February 1924.

## Adoption of Coffee Defense as a Permanent Policy

During the course of the third valorization, the groundwork was laid for a permanent coffee-defense system to replace the earlier intermittent measures. Under the new system as finally agreed upon in 1924, the task of coffee defense was turned over to the Government of the State of São Paulo and was administered by the semiofficial Coffee Institute. The new measures provided for strict regulation of the amount of coffee that might move to the port of Santos for export and for the storing of reserve stocks in specially constructed upcountry warehouses. During the first 2 years of its operation, no real test was made of the system, as the 1925-26 and 1926-27 crops were substantially in line with consumption requirements and prices were at a relatively high level. An important addition was made to the system in 1926, however, by the establishment of a State bank to make loans to coffee planters on stocks in the regulatory warehouses and against mortgages on their plantations. These credit facilities, supplementing those of private institutions, were designed to insure adequate credit to growers; and, as it later developed, an overliberal credit policy was an important factor in subsequent overexpansion in the coffee industry. During the period in which these measures were being set up to regularize marketings and to insure credit to growers, it appears that little or no consideration was given to the rapid increase in plantings of coffee trees or to any future possibility of production regularly exceeding probable consumption requirements.

The first test of the new system came with the 1927-28 crop of about 26,000,000 bags, or approximately 10,000,000 bags above world consumption of Brazilian coffee. Under the threat of this crop, the other Brazilian States joined in the defense plan by adopting substantially the same type of marketing control. Additional financial support was obtained

from abroad, and with a short crop in 1928-29 it appeared for a time that the defense program had succeeded in weathering its first storm. Meanwhile, however, loans were being made to planters on the market value of the coffee held as security, rather than on their minimum needs for cultivation. This policy not only further encouraged new plantings but also led to a general overexpansion of credit and an unhealthy business boom. In addition, the Coffee Institute is said to have actively engaged in operations in the coffee market to support prices.

The huge crop of 1929-30, which reached a figure of 28,200,000 bags, was accompanied in the fall of 1929 by a collapse of coffee prices and of the financial structure that had been built up in connection with the defense program. Additional credit could not immediately be obtained from abroad, and insufficient funds were available to continue advances to planters on stocks. The 1929 collapse did not, however, bring to an end Brazilian coffee-defense measures; to have abandoned them then would have flooded the markets with coffee and would have brought complete financial ruin to the coffee-growing regions and to Brazilian exchange. But it did force changes in the existing measures.

The following year, 1930, was largely one of stopgap efforts. In the spring of 1930, the Government of São Paulo was successful in securing in the United States and Europe a loan equivalent to about $100,000,000. There was pledged against repayment of principal 16,500,000 bags of coffee estimated to be on hand in upcountry warehouses, while the proceeds of a special tax of 3 shillings per bag on exports of coffee were to be devoted to the service of the loan. It was subsequently learned that actual stocks in Brazil were considerably higher than had been anticipated, and by the end of the year both coffee prices and Brazilian exchange had declined materially, despite a relatively small crop.

With the further decline in prices and with another large crop in prospect for the 1931-32 season, it became necessary for the Federal Government to take over the problem of coffee defense. The idea of an export tax was adopted, the returns from which were to be used for the purchase and destruction of surplus stocks. A heavy tax was also placed on new plantings of coffee trees. The export tax was first set at 10 shillings and later increased to 15 shillings, with the tax devoted to the service of the loan of 1930 included in the latter figure. Subsequently it was made payable at the rate of 45 milreis ($2.58) per bag. 1/

The export tax to finance the purchase of coffee for destruction, supplemented on occasion by sacrifice quotas whereby planters were required to deliver to the Government certain portions of their crop at prices below the market, was an essential part of Brazilian coffee defense from 1931 to the fall of 1937.

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1/ All conversions from milreis to dollars have been made at the average free market rate of exchange for November 1937, i.e., 1 milreis equals 5.7266 cents.

## Recent Changes in Coffee-Defense Measures

The plans originally adopted in May 1937 for the current (1937-38) crop involved the continuation of the export tax and the coffee-destruction program and provided for drastic quotas, whereby only 30 percent of the 1937-38 crop might be sold for export while 30 percent would constitute a "sacrifice" quota to be paid for at only 5 milreis (29 cents) per bag and 40 percent a "retained" quota to be paid for at 65 milreis ($3.72) per bag. It also provided for the issuance of 500,000 contos ($28,633,000) of currency to aid in financing the purchases of the portion of the crop constituting the sacrifice and retained quotas.

In August 1937, a meeting of representatives of the principal coffee-producing countries of Latin America was held in Habana, Cuba, to discuss the problem of overproduction of coffee. No agreement was reached on the all-important question of control of production or exports, in which Brazil was vitally interested because of the increasing competition Brazilian growths have met from other coffees in world market in recent years.

In November 1937, the Brazilian Government announced important revisions in its policies relating to coffee. The revisions involve two major steps, apparently designed primarily to permit the sale of Brazilian coffee on world markets at prices lower than those heretofore prevailing without lowering in like degree the internal prices received by Brazilian growers.

The first of these steps, submitted as a project of law to the Brazilian Congress on November 9 by President Vargas and apparently now in effect in the majority of its features, involves a reduction in the export tax on coffee to 12 milreis (69 cents) per bag of 132 pounds from the previous rate of 45 milreis ($2.58) per bag. According to the project of law, 4 milreis (23 cents) of the 12 milreis tax will be automatically suspended when, within a period not to exceed 6 years, certain obligations of the National Coffee Department, to which it is to be applied, are liquidated. In addition to the reduction in the Federal export tax on coffee, the State of São Paulo has reduced its State transportation tax on coffee from 3.5 gold milreis (42 cents) to 2 gold milreis (24 cents) per bag.

As a second step, bills of exchange derived from exports may now be sold in their entirety at free market rates. Previously, only 65 percent of the proceeds of coffee-export bills could be sold at the free market rate, the exporter having been obligated to deliver 35 percent of the proceeds to the Bank of Brazil at the less favorable official rate of exchange. Freeing of the exporter from this obligation has resulted in his receiving a greater number of milreis per unit of foreign currency for his exports than he would otherwise have received.

It appears that little change has thus far been made in the essential measures agreed upon last spring for the 1937-38 crop, except for the reduction in the export tax, which reduction is designed to place Brazilian coffee in a stronger competitive position in relation to other coffees in world markets. There remain in force, apparently, the following essential features of Brazil's coffee-control program for the current season: (1) Only 30 percent of the 1937-38 crop to be sold for export, 30 percent to constitute a "sacrifice" quota to be paid for at 5 milreis (29 cents) per bag, and 40 percent to serve as a "retained" quota to be paid for at 65 milreis ($3.72) per bag; (2) 500,000 contos ($28,633,000) of currency to be issued to aid in financing purchases of the 70 percent of the crop that constitutes "sacrifice" and "retained" quotas. It appears, further, that restrictions on the movement of coffee from upcountry shipping points to the port of export shipment are being continued, as is the coffee-destruction program.

## Statistical Position of Coffee Industry

Before an attempt is made to appraise in summary fashion Brazilian experience with coffee defense, the recent statistical position of the commodity should be reviewed briefly in comparison with its position in the years preceding active operation of the permanent coffee-defense policy. During the past 5 years, from 1932-33 to 1936-37, Brazilian coffee production has averaged 21,659,000 bags, as compared with 13,962,000 bags during the 5 years from 1922-23 to 1926-27. Production of other than Brazilian growths, as indicated by arrivals in consuming countries, has increased from an average of 6,691,000 bags in the 5 years 1922-23 to 1926-27 to an average of 9,379,000 bags in the period from 1932-33 to 1936-37. World coffee consumption, on the other hand, has increased in much smaller degree, from an average of 20,900,000 bags in the earlier period to an average of 24,100,000 bags in the period from 1932-33 to 1936-37.

Exports of Brazilian coffee have averaged but slightly higher in the past 5 years than in the earlier period, 14,049,000 bags from 1932-33 to 1936-37 against 13,830,000 bags from 1922-23 to 1926-27. When these figures for Brazilian exports and those covering arrivals of other coffees in consuming countries are compared, it becomes evident that the other producers have acquired a substantially greater portion of the world market, 40 percent in the past 5 years compared with 33 percent in the 5 years beginning with 1922-23.

Despite the destruction of 47,961,000 bags of coffee in Brazil between 1931 and June 30, 1937, the world carry-over as of July 1, 1937, was estimated at 30,451,000 bags, of which 28,069,000 bags consisted of Brazilian coffee and 2,382,000 bags of other coffees. This was only slightly below the previous peak reached on July 1, 1932. When estimated production for the current season of 25,462,000 bags of Brazilian coffee

and 11,500,000 bags of other coffees is added, supplies of all coffees for the 1937-38 season may be estimated at 67,413,000 bags - 53,531,000 bags of Brazilian and 13,882,000 bags of other coffees. In this connection, it is interesting to note that total consumption of Brazilian coffee during the preceding season was estimated at only about 14,125,000 bags, and of other coffees at approximately 10,750,000 bags, while destruction of coffee in Brazil totaled 10,893,000 bags. Prices of mild coffees, as represented by Colombian Manizales in figure 3, have been lower relative to Brazilian in recent years than during the 1920's.

## Conclusions

Generally speaking, an examination of the Brazilian coffee valorization or defense measures indicates that they operated fairly well in mitigating the effects of cyclical fluctuations in production prior to, say, 1927. Over the long term, production and consumption were fairly well in line during the periods covered by the earlier valorization measures, and the prohibition of new plantings for the 10-year period beginning 1902 was probably of assistance in maintaining the long-term balance.

The difficulties that developed after the adoption of coffee defense as a permanent policy appear to have been due to a number of factors. They include (1) attempts to stabilize coffee prices at unduly high levels; (2) overliberal credit policies; (3) failure to limit new plantings in the 1920's, which instead were encouraged by (1) and (2) and which have accounted in considerable degree for the large crops of the past few years; (4) administrative deficiencies in the operation of the control machinery; and (5) encouragement of plantings in other countries, which had come to believe that Brazil would engage indefinitely in direct or indirect price-supporting measures.

## COFFEE: PRODUCTION IN THE WORLD AND IN BRAZIL, 1900-01–1937-38

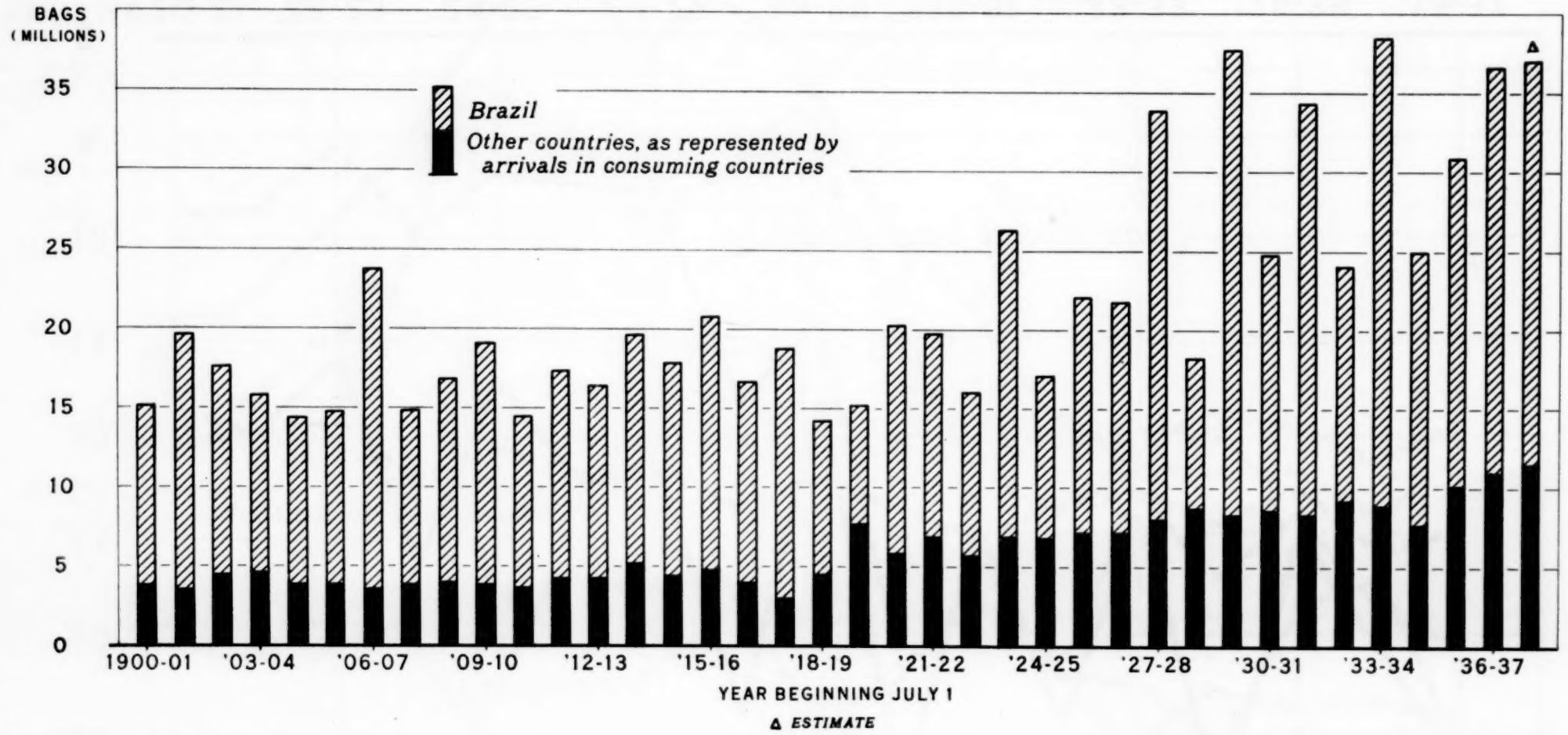


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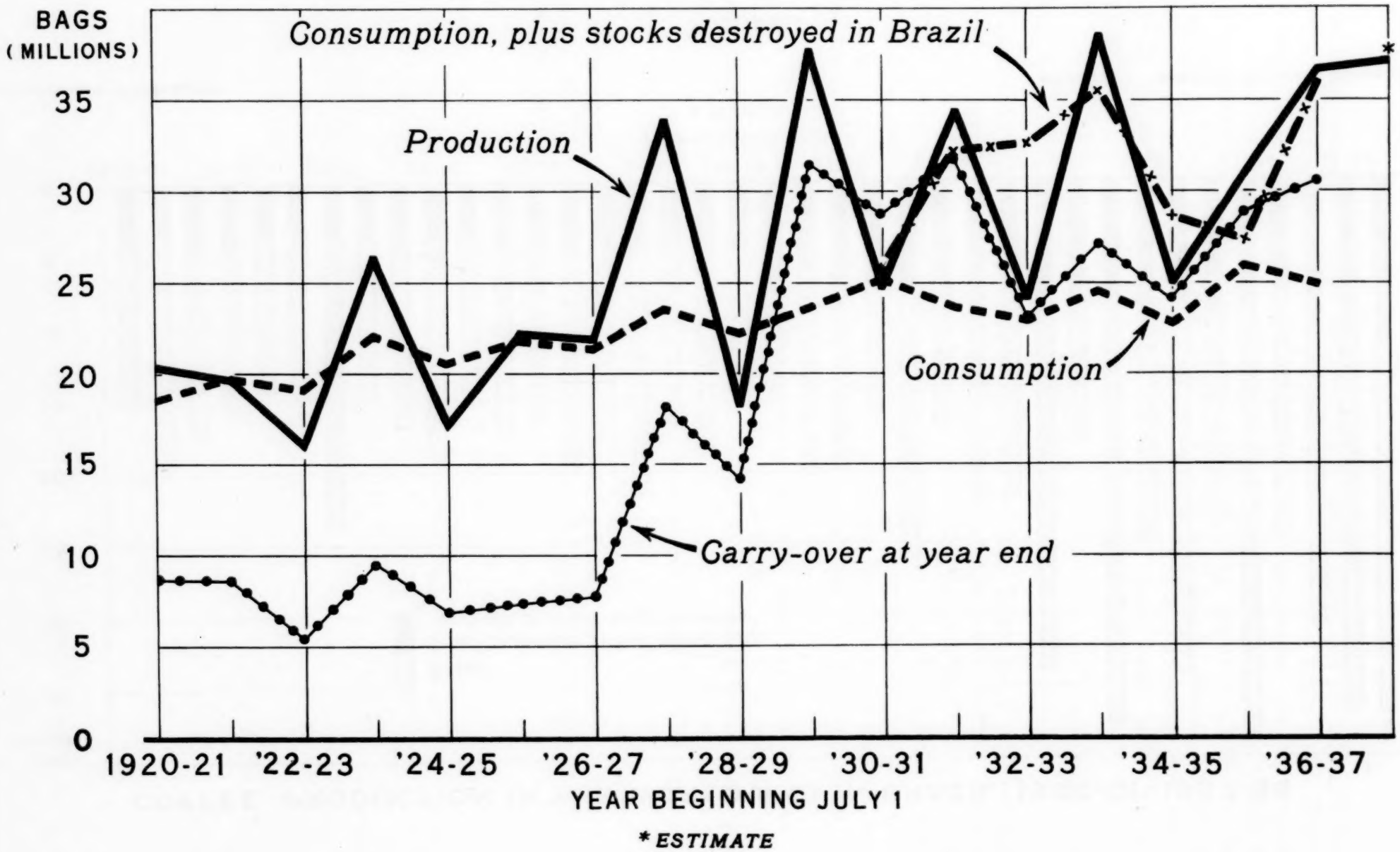
FIGURE 1

# COFFEE: WORLD PRODUCTION, CONSUMPTION AND CARRY-OVER, 1920-21 TO DATE




*ESTIMATE

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FIGURE 2

# COFFEE: WHOLESALE PRICES AND PRICE MARGIN, NEW YORK, 1920-21–1936-37

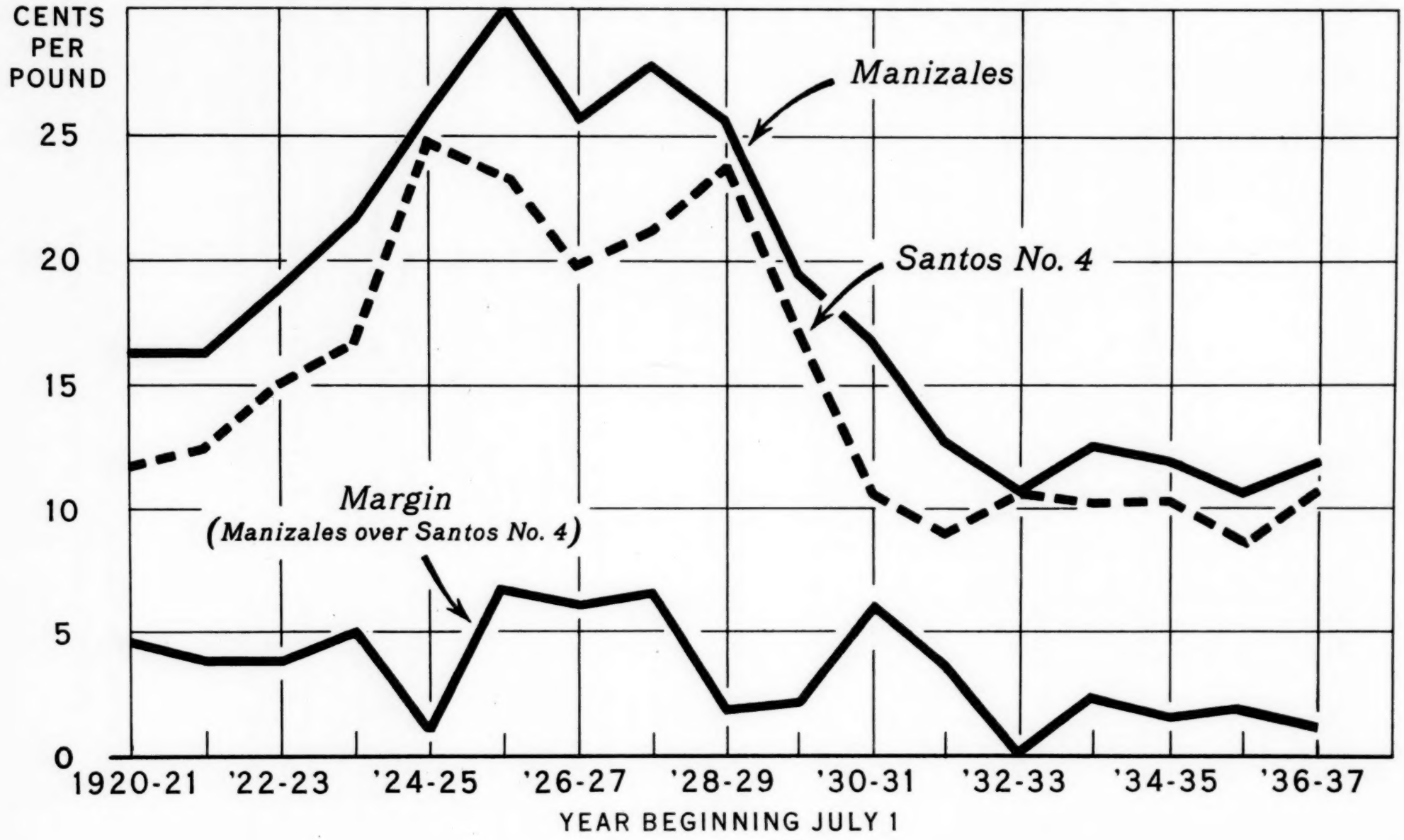


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FIGURE 3

## EFFECT OF SUBSIDIES ON BRITISH WHEAT ACREAGE AND ON RETURNS TO GROWERS*

An indication of the probable effect of the recent decision by the British Government to subsidize oat and barley growers and to increase the amount of home-grown millable wheat for which a minimum price is guaranteed is given in the July issue of "The Farm Economist", published monthly by the Agricultural Economics Research Institute, Parks Road, Oxford, England. The report shows that returns to wheat growers will be higher under the new than under the old Wheat Act but expresses the opinion that wheat production is not likely to be expanded substantially unless the price of wheat over a long period is relatively higher than prices of other farm products.

Under the previous regulations, wheat growers received a deficiency payment at the end of each marketing year (July 31) equal to the difference between the standard price of 10s. per cwt. ($1.33 per bushel) and the average price actually realized on all sales of millable wheat up to 27,000,000 cwt. (50,400,000 bushels). If, however, more than 27,000,000 cwt. were sold, the so-called deficiency payment was reduced proportionately. The effect of that legislation was to encourage production up to 27,000,000 cwt. but to discourage it in excess of that amount. Under the modified regulations, the amount of home-grown millable wheat for which the price of 10s. per cwt. is guaranteed has been increased to 36,000,000 cwt. (67,200,000 bushels).

The Government at the same time, moreover, decided to pay conditional subsidies to growers of oats and barley who do not benefit under the Wheat Act. Oat and barley growers not receiving the wheat subsidy will be given a payment on limited quantities equal to the difference between the average price actually received and a guaranteed price of 56 cents a bushel for oats and 85 cents a bushel for barley. In no case, however, are oat and barley subsidy payments to exceed £1 (about $4.95) per acre.

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*Based on an original study by Ruth L. Owen, member of the staff of the Agricultural Economics Research Institute, Oxford, England.

The effect of the modification in the Wheat Act on producers' returns per bushel at varying levels of wheat prices and at varying quantities of home-grown millable wheat sold is shown in the following table.

Computed average returns, per bushel, to wheat growers under the old and the new Wheat Acts

| 1,000 bushels of millable wheat sold | When the actual price per bushel averages | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | $0.66 | | $0.80 | | $0.93 | | $1.06 | | $1.19 | |
| | Old | New | Old | New | Old | New | Old | New | Old | New |
| 50,400..... | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 | $1.33 |
| 56,000..... | 1.26 | 1.33 | 1.27 | 1.33 | 1.28 | 1.33 | 1.30 | 1.33 | 1.31 | 1.33 |
| 61,600..... | 1.20 | 1.33 | 1.23 | 1.33 | 1.25 | 1.33 | 1.28 | 1.33 | 1.30 | 1.33 |
| 67,200..... | 1.16 | 1.33 | 1.19 | 1.33 | 1.23 | 1.33 | 1.26 | 1.33 | 1.29 | 1.33 |
| 72,800..... | 1.12 | 1.27 | 1.16 | 1.28 | 1.20 | 1.29 | 1.25 | 1.30 | 1.28 | 1.31 |
| 78,400..... | 1.09 | 1.23 | 1.14 | 1.25 | 1.18 | 1.27 | 1.23 | 1.29 | 1.27 | 1.30 |
| 84,000..... | 1.06 | 1.19 | 1.12 | 1.22 | 1.17 | 1.25 | 1.22 | 1.27 | 1.27 | 1.30 |

Converted from shillings and pence per cwt. on the basis of the September 30, 1937, exchange rate, £1 equals $4.95021.

Study of the above tabulation reveals that, as long as sales of domestic wheat are less than 27,000,000 cwt. (50,400,000 bushels), the new arrangement will have no effect whatever on actual net returns to growers. The reason is that, in the event prices are below the guaranteed level of 10s. per cwt. ($1.33 per bushel), growers will receive no more and no less than the difference between that level and the average market price at which the 27,000,000 cwt. or less were sold. And in the event average market prices are above the guaranteed level, no subsidy at all would be payable.

If, however, more than 27,000,000 cwt. of home-grown millable wheat are sold in a season, producers will realize substantially higher prices than under the old arrangement, whether the actual market price realized for the same is above or below the guaranteed minimum of 10s. per cwt. ($1.33 per bushel). The British Minister of Agriculture refers to this fact as a "valuable additional insurance" to growers.

If, for example, 36,000,000 cwt. (67,200,000 bushels) of wheat were sold during a season at a market price that averaged only 9s. per cwt. ($1.19 per bushel), the returns to growers under the new act would amount to 10s. ($1.33 per bushel) while under the old act they would have amounted to only 9s.9d. ($1.29 per bushel). Thus, net returns to growers under these conditions would be 3d. per cwt. (4 cents per bushel) higher than under the old act.

Should the average market price for these 36,000,000 cwt. be less than 9s. per cwt. ($1.19 per bushel), the difference in net returns under

the new act as compared with the old would be even greater. With these 36,000,000 cwt. selling at 8s. ($1.06 per bushel), for example, the difference would be 6d. (7 cents per bushel); if selling at 7s. ($0.93), the difference would rise to 9d. (10 cents); if at 6s. ($0.80), to 1s. (14 cents); and if at 5s. ($0.66), to 1s.3d. (17 cents).

The net returns to growers would also be greater than under the old act should more than the 36,000,000 cwt. be sold. Thus, if 39,000,000 cwt. (72,800,000 bushels) are sold at an average price of 9s. per cwt., the net returns to growers under the new act would be 9s. 11d. ($1.31 per bushel), while under the old they would have amounted to only 9s.8d. per bushel), the difference would be 7d. (5 cents); if at 7s. ($0.93), it would be 8d. (9 cents) higher; at 6s. ($0.80), it would be 11d. (12 cents) higher; and at 5s. ($0.66), 1s.2d. (15 cents) higher.

Commenting on the probable effect of the extended wheat subsidy on the future wheat acreage in the United Kingdom, the report points out that the acreage planted to wheat in the United Kingdom in any one autumn depends to a large extent upon the price of wheat relative to the price of other agricultural products. When wheat prices are relatively high, an acreage expansion may be expected; but, when relatively low, a reduction in acreage is likely to take place. Moreover, if barley and oat prices are particularly high at the time wheat is planted, the wheat acreage will probably be somewhat smaller than it otherwise would have been.

The existing (July 1937) level of agricultural prices is nearly 140, taking 1911-1913 as 100, and it is likely to rise still further, says the report. The conclusion is drawn, therefore, that, as long as the index of farm prices remains at or above existing (July 1937) levels and as wheat prices are not above 10s. per cwt., there is little probability that the sales of millable wheat will exceed 27,000,000 cwt. per annum.

Should the general level of agricultural prices decline, however, the sales of home-grown millable wheat under the stimulus of a guaranteed price of 10s. per cwt. might well exceed 27,000,000 cwt. per annum, according to the report. Under such conditions, the recent modification in the Wheat Act will be of great value to the wheat growers. In general, the extent to which growers are likely to benefit from the decision to extend the application of the guaranteed price to a new maximum of 36,000,000 cwt. will depend on the future level of wheat prices compared with the prices of other farm products and on the amount of wheat that growers sell off the farms for milling.

The report expresses the opinion that the new subsidies to growers of barley and oats will tend to reduce the wheat acreage, since these

subsidies are to be paid only to growers who do not qualify for payments under the Wheat Act. Moreover, it is believed that, with the payment of a subsidy to barley and oat producers, the latter will cease to claim payments under the Wheat Act. This would further tend to reduce the amount of home-grown millable wheat moving to market.

# RECENT DEVELOPMENTS IN FOREIGN AGRICULTURAL POLICY

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## NETHERLANDS CONSIDERS REDUCING AID TO FARMERS

Should agricultural prices improve, the Government of the Netherlands plans to reduce to some extent the relief it now accords to farmers under the various so-called crisis measures that have been adopted in recent years, according to a report from the American Embassy at The Hague. Many of these measures involve the imposition of crisis levies that have proved burdensome to American exporters.

The intention of the Government to reduce the crisis levies on agricultural products as the prices of those products rise in world markets was announced in an official memorandum issued on November 9, 1937. In this memorandum, the Government points out that the measures for the support of agriculture were adopted in order to protect Netherlands agriculture as far as possible from the consequences of the sharp fall in world market prices of agricultural products. This protection was accomplished by increasing the returns that farmers received for their products either by means of direct financial support or through indirect measures for raising the internal price level.

The statement points out that in view of these aims it is to be concluded that measures originally adopted for the stabilization of prices to domestic producers can be wholly or partly abandoned as world prices of the commodities in question increase to desirable levels. At the same time, the levies from which the cost of administering the particular relief measures in question was met can likewise be revoked or lowered.

The Government therefore proposes to follow a policy that will lead to a gradual liquidation of the financial measures now in force for the support of agriculture, the rate of the liquidation depending upon the speed of the rise in the general price level of those products. The Government, however, emphasizes that this liquidation in crisis measures will not be permitted to result in the abandonment of any institutions that appear to be useful. The Government also proposes to strive for improvement in the quality of agricultural and horticultural products, not only insofar as this is of importance for exports, but also with a view to stimulating the domestic sale of such products.

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## DANUBE BASIN RELIEF TO WHEAT AND RYE GROWERS

Relief to producers of wheat and rye in Bulgaria, Rumania, and Yugoslavia is being maintained as a vital part of the agrarian policies of those nations, according to a report received from the Belgrade office of the Bureau of Agricultural Economics. These measures provide either for governmental purchases at levels higher than the world market price or for the payment of export premiums.

### Bulgaria

The Bulgarian Government Grain Monopoly continues to buy wheat from farmers at 320 leva per quintal (80 cents per bushel at current rate of exchange) and rye at 245 leva per quintal (56 cents per bushel). Sales to domestic mills are made at from 386 to 400 leva per quintal (95 to 99 cents per bushel), according to quality, for wheat, and at from 287 to 300 leva per quintal (66 to 69 cents per bushel) for rye, according to the distance between mill and nearest agency of the Monopoly. The Monopoly sells wheat to Bulgarian exporters at variable prices, which are somewhat below the quotations on foreign markets. Exporters are required to deliver strong currencies obtained for wheat to the National Bank of Bulgaria. Sales against weak currencies are not permitted.

### Rumania

On August 12, 1937, the Rumanian Wheat Marketing Board fixed an export premium of 30 lei per quintal (6.2 cents per bushel) on wheat destined for export; this was increased early in September to 70 lei per quintal (14.3 cents per bushel) and was to remain at that level at least until December 10. According to a decision of the Wheat Marketing Board, handed down in September, the above premiums were to be paid only on exports made in compliance with the terms and minimum prices fixed by the Board for sales abroad.

Export premiums on wheat were fixed in Rumania for the first time in 1931-32. In that year 11,077,000 quintals of wheat were exported, at a premium of 100 lei per quintal. Actual payment of the premiums, however, was delayed for more than 2 years; finally, in the fall of 1933, a large part of the unpaid balance was liquidated by means of Government bonds, the market price of which was only about 30 percent of the face value.

According to trade reports, practically no premium payments due on wheat exports made after July 1, 1937, had been made by the Government up to the middle of November. The total of unpaid premiums due to the end of October 1937 was placed at 150,000,000 lei ($1,126,950 at the current rate of exchange). Exporters entertained fears late in October that their premium claims might meet the same fate as those earned in 1931-32.

Beginning with early October, the Board has made the payment of premiums on wheat exported to countries with weak currencies contingent upon the simultaneous exportation of fruit and/or wine equivalent to at least 20 percent of the quantity of the wheat exported. Wheat exporters are required to deposit a security in the amount of from 20 to 40 lei per quintal of wheat with the Wheat Marketing Board. If they are not in a position to export the additional quantities of fruit or wine, this security is forfeited to the Board. In other words, the 70-lei premium per quintal is reduced to from 30 to 50 lei.

The distribution of improved seed has continued this year. Breeders and producers of improved wheat are allowed a premium of 100 lei per quintal (20 cents per bushel) on original seed, (i.e., seed directly purchased from the grower) and 50 lei on other improved seed. An appropriation of 10,000,000 lei ($75,130) has been granted to the Ministry of Agriculture for the payment of these premiums.

Yugoslavia

The Yugoslav Privileged Export Company continues to accept wheat from farmers at prices well above export parity. A total of about 1,050,000 quintals (3,858,000 bushels) had been acquired by the Privileged Export Company up to November 10. Most of this quantity has subsequently been exported by the company to Germany and Austria, with which countries preferential trade agreements providing for customs-duty refunds are in existence.

The Privileged Export Company imported large quantities of the Hungarian improved wheat variety Bankuti in 1936. The original seed has been increased in the meantime and has become popular in the principal Yugoslav wheat sections of the Banat and Batchka. It is now anticipated that in a few years this variety will replace the native varieties and especially the Prolific and other soft wheats introduced into these districts during and after the World War. The Privileged Export Company pays 200 dinars per quintal ($1.26 per bushel) for Bankuti wheat, which it distributes to farmers at between 165 and 170 dinars ($1.04 to $1.07 per bushel). Funds have been provided for the distribution of 30,000 quintals (110,000 bushels) of seed on the above basis.

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## SWISS WHEAT AND FLOUR TRADE REGULATIONS 1/

State control of the wheat trade in Switzerland dates back to 1915, when as a measure of national emergency the Government assumed sole responsibility for wheat importation and distribution. This monopoly continued until 1929. It was then abandoned in accordance with a plebiscite held on the question.

1/ Summarized from a report published by the Canadian Ministry of Trade and Commerce in The Commercial Intelligence Journal for November 1937.

The law abolishing the monopoly, however, provided measures of Government aid to domestic wheat producers. The main features of that law are the formation and maintenance by the Government of reserve stocks and the purchase of home-grown wheat at a guaranteed price. The Government likewise provides the machinery for selling this wheat to millers, the paying of milling premiums, and the protection of the Swiss milling industry against foreign competition.

In order to insure an adequate supply of wheat within the country, the Government maintains a reserve of approximately 3,000,000 bushels, which, however, may be augmented under exceptional circumstances. This reserve supply is held in both private and public storehouses and must consist of varieties and qualities best suited for milling purposes. An agency known as the Federal Cereal Administration is responsible for the maintenance of these reserves. Sales from reserves are made to millers at prevailing market prices, but equal quantities are always concurrently purchased from abroad so that the specified minimum quantity is always held in stock.

In order to assure a satisfactory price to domestic growers, the law provides that the Government must purchase directly from producers all offerings of wheat that are suitable for bread-making purposes at a price between 34 and 45 francs per 100 kilos ($2.14 to $2.84 per bushel), f.o.b. cars or delivered at mill or warehouse. The actual price paid is fixed annually by the Federal Council. For wheat of a superior quality, a special premium of 1.50 francs per 100 kilos (9.5 cents per bushel) may be paid. A subsidy may also be paid to producers of wheat in mountain regions because of their higher production costs.

The milling industry is under the supervision of the Government whose advice and instruction it must follow. Mills, for example, are required to store without charge their part of the national reserve. They must also take for grinding the native wheat purchased by the Government. In addition, at the request of the Cereal Administration, they must purchase from time to time, the foreign wheat held in reserve storage in order to permit the periodic renewal of such stocks.

The Government fixes the price to be paid by mills for the foreign wheat taken from the reserve stocks on the basis of the average price ruling for foreign wheat of similar quality delivered at the mill. Home-grown wheat is purchased by the mills at a uniform price, delivered at railway station or destination.

In recompense for the regulations to which the Swiss flour milling industry must submit, the Government reserves the flour market exclusively for Swiss millers. This is accomplished by a provision that flour may be imported only upon authorization of the Cereal Administration and only against the payment of a compensatory duty, the amount of which is to be

fixed by the Government. In actual practice, there are no imports of bread-making flour. The law also authorizes the Government to protect the interests of bread consumers from exploitation at the hands of millers, who enjoy monopoly privileges as regards the sale of flour.

All firms and individuals, therefore, who import, sell, mill, or trade in wheat are placed under the supervision of the Swiss Government. They must be registered and must conform to the regulations prescribed by the wheat law. The actual movement of foreign wheat is Government controlled from the time it enters the country until it is finally consumed. All regards domestic wheat, this supervision commences with delivery by the producer to the Government.

Wheat production in Switzerland is not sufficient to meet domestic requirements. Furthermore, such wheat as is produced requires the admixture of hard wheats for the production of suitable bread flour. While imports are controlled by import quotas fixed by the Government, actual purchase is made through established domestic trade agencies. Imports are dutiable at 0.60 francs per 100 kilos (about 4 cents per bushel). In recent years, wheat imports have generally been made from countries having frozen Swiss credits, and from those that are willing to take Swiss industrial products in exchange for wheat.

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## GERMAN CHEMICAL PROCESS FOR IMPROVING HEAVY-GRADE TOBACCO

A chemical process for improving inferior, heavy grades of tobacco, involving the use of hydrogen peroxide, introduced in Germany in 1936, has been making considerable progress commercially of late and the prospects are that in the not distant future the process will be adopted for treating all Germany's production of heavy-grade tobacco, rendering it suitable for pipe smoking and lessening the need for imported tobacco, according to a report from American Consul Sydney B. Redecker at Frankfort on the Main, Germany. It should be pointed out, however, that the great bulk of Germany's tobacco production, of around 70,000,000 pounds annually, is used in the manufacture of regular tobacco products, chiefly smoking mixtures.

The process in question has been tested exhaustively and found to be practical for improving the particular kind of German tobacco, which hitherto, because of its heavy and inferior grade, was unsuitable for smoking purposes and was therefore used largely for obtaining nicotine for insecticide purposes. Heretofore, a serious obstacle to the widespread commercial adoption of the process was the legal requirement contained in the so-called Declaration Decree that all tobacco offered for sale that has been chemically or otherwise artificially treated for improving its quality bear a clear indication setting forth the nature of such treatment.

Owing to the unfavorable psychological effect of this required publicity of artificial treatment, the commercial development of the chemical improvement process referred to has been retarded. It is now reported that the legal requirement of public declaration will shortly be abolished as regards the leading "Merck-Degussa" tobacco-improvement process and that, with its abolition, adoption of the process will gain rapidly until Germany's entire production of heavy tobacco will be processed by it.

In addition to reducing the nicotine content of the heavy grades of tobacco, it is claimed that the process also reduces all other unsuitable elements. A particularly favorable characteristic of the process is that it is said to be the only one so far developed that enables treatment of the tobacco in its first preparation stages, thus avoiding any injury to the external structure of the tobacco leaf while achieving maximum results in improved quality.

By enabling the increased utilization of German tobaccos of the heavy grades for smoking purposes, the universal adoption of the process for treating Germany's entire production of heavy grades of tobacco appears calculated to exert considerable effect upon Germany's foreign trade in tobacco by reducing the need for imported leaf hitherto required for smoking purposes.